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ABSTRACT

As part of a two-year Midwestern Higher Education Commission (MHEC) initiative, this project provided essential background and planning information on minority faculty representation in Midwestern higher education, and proposed regional strategies to advance minority faculty recruitment and retention in Midwestern institutions of higher education. The research used survey data analyses of the dynamics of the labor market, interviews with successful minority faculty, case studies examining factors that contribute to institutional climate on this issue, and documentary analyses of institutional practices. The research concluded that: (1) when measured in comparison with the percentage of the entire population, representation among full-time faculty at member institutions differed by minority group with African Americans severely under represented in all states, American Indians and Hispanics under represented in most states, and Asian American not under represented; and (2) causes of these patterns included low faculty salaries, faculty mobility to other regions, "chilly" institutional climates, few recruitment or retention programs, and substantial under representation nationally along every part of the education pipeline among African American, Hispanics, and American Indians. Extensive appendixes contain the interview protocol, interview summary, faculty development survey, technical census tables, descriptions of exemplary programs, and a survey of doctoral degree recipients. (Contains 184 references.) (JB)

ED 390 354

MHEC

Advancing Education Through Cooperation

MINORITY FACULTY DEVELOPMENT PROJECT

FINAL REPORT

May 1995

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PREFACE

The following report culminates a two-year planning and research initiative undertaken by the Midwestern Higher Education Commission (MHEC). MHEC was established in 1991 by the Midwestern Regional Education Compact, an interstate statutory agreement among several states. Current compact members are: Illinois, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio and Wisconsin. Eligible states that have not yet joined the compact include Indiana, Iowa, North Dakota and South Dakota. The Commission's mission is to assist Midwestern states in advancing higher education through interstate cooperation and resource sharing. The commission is comprised of five members from each state, appointed by the governor and the legislature.

The objective of this MHEC project was to provide essential background and planning information on minority faculty representation in Midwestern higher education, and to propose regional strategies the Commission might pursue to advance minority faculty recruitment and retention in Midwestern higher education.

MHEC adopted the following goal in July 1991:

> ***To develop a plan to encourage the expansion of minority faculty in underrepresented academic disciplines at public and independent colleges, universities, community colleges, and technical colleges throughout the Midwest.***

The Commission developed a preliminary proposal in May 1992 to develop a pipeline fellowship project that would facilitate the matriculation of minority graduates of Midwestern institutions into Ph.D. programs at Midwestern research universities. The project's aim was to recruit graduates of these Ph.D. programs back into faculty positions at Midwestern institutions.

In March 1993, the Commission appointed Dr. Samuel L. Myers, Jr., Roy Wilkins Professor of Human Relations and Social Justice at the Hubert H. Humphrey Institute of Public Affairs, University of Minnesota, as principal investigator to explore the problems of underrepresentation, assess the merits of the preliminary proposal and other possible options, and recommend regional strategies to facilitate the representation of minority faculty among member institutions. Dr. Caroline Sotello Viernes Turner, Associate Professor, Department of Educational Policy and Administration, University of Minnesota, served as coprincipal investigator.

This document is their report to the Commission.

As a first step in organizing the project, an Oversight Committee was established to give general direction to planning and to assess progress towards the accomplishment of objectives. The Committee reviewed and approved the preliminary organizational format.

The project team then convened two sessions with a panel of research scholars to incorporate their input and expertise into the project design and implementation, and to begin to establish awareness of the MHEC project within the higher education community. Twenty five scholars, noted for their research in the area of minority faculty development issues, participated in the sessions.

The preliminary research results were presented to a Research Advisory Panel of Scholars and a first draft report of findings and recommendations was prepared and presented to the project's Oversight and Steering Committees. The report was revised and redrafted and sent to the State Higher Education Executive Officers in MHEC states for further review and counsel with special emphasis upon implementation priorities and strategies. We are grateful to the following for their review and critique at various stages in the project:

The Oversight Committee: Roger Clark, Director, Committee on Institutional Cooperation; Josie Johnson, Associate Vice President for Academic Affairs, University of Minnesota; Sharon Tolbert-Glover, Mary Pickard, and Ronald McKinley, The St. Paul Companies; Michael O'Keefe, Executive Vice President, The McKnight Foundation; David Powers, Executive Director, Nebraska Coordinating Commission for Postsecondary Education; and Phillip Sirotkin, Senior Adviser, Midwestern Higher Education Commission.

The Steering Committee: Carol Anderson, Administrator, Graduate and Special Programs, Ohio Board of Regents; Sherri Coe-Perkins, Vice President for Student Affairs, Marquette University; John Creswell, Professor, Educational Psychology, University of Nebraska-Lincoln; Dolores Cross, President, Chicago State University; Lucille Davis, Dean, College of Nursing and Allied Health, Chicago State University; Douglass Day, Associate Director, Academic Affairs, Illinois Board of Higher Education; James E. Facen, Assistant Provost, Wayne State University; Greg Frost, Assistant to the Associate Vice Chancellor, University of Kansas; John L. Henderson, President, Wilberforce University; David Hinton, Dean, College of Public Affairs, University of Nebraska; Rachel Lindsey, Dean, College of Arts and Science, Chicago State University; Charles E. Morris, Vice Chancellor for Academic Affairs, Illinois Board of Regents, K. C. Morrison, Vice Provost, Minority Affairs, University of Missouri-Columbia, Emma Palmer, Milwaukee Area Technical College; Chernoh M. Sesay, Provost and Vice President, Academic Affairs, Chicago State University; Glenn Stevens, Executive Director, Presidents Council, Michigan State Universities; John A. Taylor, Vice President, Academic Affairs, Lincoln University; and Judith Trent, Associate Vice President, Research and Advanced Studies, University of Cincinnati. Other scholars who attended the Steering Committee meetings as representatives of their academic institutions were Kenneth Johnson, Chicago State University and Bernard Ray, Illinois Board of Regents.

The Research Advisory Panel of Scholars: Leonard Baird, Professor, College of Education, University of Kentucky; Estela Bensimon, Associate Professor & Senior Research Associate, Pennsylvania State University; Robert Blackburn, Professor, CSHPE, University of Michigan; Robert Boice, Professor, Department of Psychology, State University of New York; Alberto Cabrera, School of Education, State University of New York; Monique Claque, Professor,

Education Policy, University of Maryland; Shirley M. Clark, Vice Chancellor for Academic Affairs, Oregon System of Higher Education; John Creswell, Professor, Educational Policy, University of Nebraska; Althia deGraft-Johnson, Vice President of Academic Affairs, United States International University; Martin Finkelstein, Director, New Jersey Collegiate Teaching and Learning, Seton Hall University; Mildred Garcia, Associate Vice President for Academic Affairs, Montclair State College; William Harvey, Associate Professor, Adult and Community College Education, North Carolina State University; Sylvia Hurtado, Associate Professor, School of Education, University of Michigan; Linda K. Johnsrud, Professor, College of Education; University of Hawaii; Berta Vigil Laden, Associate Professor, Department of Educational Leadership, Peabody College of Vanderbilt University; Robert Menges, Professor, School of Education and Social Policy, Northwestern University; Barbara Nelson, Vice President for Academic Programs, Radcliffe College; Michael Nettles, Professor, Education and Public Policy, University of Michigan; Amaury Nora, Associate Professor of Education, College of Education, University of Illinois; Ronald Opp, Assistant Professor, College of Education, Texas Tech University; Mary Ann Sagaria, Associate Professor, The Ohio State University; Jack Schuster, Professor, Education and Public Policy, Claremont Graduate School; Daryl Smith, Professor of Education, Claremont Graduate School; Martha Stassen, Associate Director for Assessment, University of Massachusetts, and William Tierney, Professor and Director, Center for Higher Education Policy Studies, University of Southern California.

Detailed reviews of various drafts of the report were provided by: Frank C. Abbott, Coordinating Consulting, The Compact for Faculty Diversity; Carol Anderson, Administrator, Graduate and Special Programs, Ohio Board of Regents; Robert F. Banks, Assistant Provost and Assistant Vice President for Academic Human Resources, Michigan State University; Gerald T. Brouder, President-Elect, Columbia College, Missouri; James M. Brown, Chancellor, Southern Illinois University; Roger Clark, Director, Committee on Institutional Cooperation; Althia deGraft-Johnson, Vice President of Academic Affairs, United States International University; Greg Frost, Assistant to the Associate Vice Chancellor, University of Kansas; Joseph P. Graba, Executive Director, Minnesota Higher Education Coordinating Board; David Hinton, Dean, College of Public Affairs, Community Services, University of Nebraska-Omaha; Sylvia Manning, Vice President, Academic Affairs, University of Illinois at Chicago; Martin Massengale, President Emeritus, University of Nebraska; David Murphy, President, Midwestern Higher Education Commission; Jay Noren, Chancellor, Minnesota State Colleges and Universities; Michael O'Keefe, Executive Vice President, The McKnight Foundation; David Powers, Executive Director, Nebraska Coordinating Commission for Postsecondary Education; George Russell, President, University of Missouri System; Sandra Scofield, Principal Investigator, Nebraska Mathematics and Science Initiative and Chair, Midwestern Higher Education Commission; Phillip Sirotkin, Senior Advisor, Midwestern Higher Education Commission; and William G. Tierney, Professor and Director, Center for Higher Education Policy Studies, University of Southern California.

Valuable research and consulting support was provided by Allan Malkis, Research Associate, The Urban Coalition, St. Paul, Minnesota, Daniel M. Pasquini, Research Associate, National

Research Council, and Jeff Dykehouse, University of Michigan. Claire Cohen provided early editorial assistance and Dana Schroeder served as editor on the final draft of the report.

This project was ably assisted by a dedicated and committed research staff from the Roy Wilkins Center, Humphrey Institute and the University of Minnesota throughout the project. Andriana Abariotes, ChanJin Chung, Mohamed Darif, Todd Graham, Linda Heyne, Willie Johnson, Fred Marsh, Melanie Peterson-Hickey, Lan Pham, Nathan Tiller, David Waithaka, and Tina Yim provided statistical analysis and qualitative research assistance. Diane Berube, Judy Leahy, and Jennifer Williams assisted in the final production of the report.

Funding for the project was provided by grants from The St. Paul Companies and The McKnight Foundation.

Minneapolis, Minnesota
May, 1995

EXECUTIVE SUMMARY

FINDINGS

Extent of Minority Representation.

1. Varying definitions of representation yield alternative estimates of the degree of underrepresentation of minority faculty.

2. When measured in comparison with the percentage of the entire population, representation among full-time faculty in Midwestern Higher Education Commission (MHEC) states differs by minority group: African Americans are severely underrepresented in all states; American Indians are underrepresented in seven out of eight states; Hispanics are underrepresented in six of eight states; Asian Americans are not underrepresented.

3. When measured in comparison with the percentage of the population ages 24 to 70, representation among higher education faculty in Midwestern Higher Education Commission (MHEC) states differs by minority group: African Americans and American Indians are severely underrepresented; Hispanics are also substantially underrepresented in most MHEC states; Asian/Pacific Islanders, in contrast, are represented at higher proportions among faculty than among the population in all eight MHEC states.

- The percentage of African American faculty members in MHEC states (3.7 percent) is considerably less than half the percentage of African Americans ages 24 to 70 in the population (9.5 percent).
- The percentage of American Indian faculty members (0.2 percent) is half the percentage of American Indians ages 24 to 70 in the population (0.4 percent).
- In seven states the percentages of Hispanic faculty members were less than the percentage of Hispanics ages 24 to 70 in the population. In one state--Wisconsin--the percentage of Hispanic faculty members was somewhat greater than the percentage of Hispanics ages 24 to 70 in the population.
- The percentage of Asian/Pacific Islander faculty members in MHEC states ranges from 1.5 percent in Nebraska to 6.3 percent in Illinois. But Asian/Pacific Islanders as a percentage of the population ages 24 to 70 range from less than one percent in four MHEC states to 2.5 percent in Illinois.

4. Moreover, African American and American Indian faculty representation in MHEC states is lower than the national average, using the measure based on age groups 24-70. The representation of Asian/Pacific Islanders and Hispanics in MHEC states is above the national average, although representation of Hispanic males is lowest of all racial groups.

5. When measured in comparison with the percentage of individuals with master's or Ph.D. degrees, nonwhites as a group are underrepresented as faculty members in MHEC states.

Nonwhites as a group are only 76 percent as prevalent among faculty members in MHEC states as among people with master's or Ph.D. degrees living in MHEC states.

6. National data show that African American, American Indian and Hispanic faculty representation in science and engineering (which includes social sciences, physical sciences and engineering fields) is lower than in other fields. MHEC data also show these patterns.

Causes of Underrepresentation.

1. African Americans, Hispanics, and American Indians are substantially underrepresented nationally along every step of the collegiate education pipeline culminating in the doctorate. Asians are represented at higher proportions than in the population all along the pipeline to the doctorate.

- African Americans' share of all degrees drops from 4.9 percent of bachelor's to 4.3 of master's to 3.1 percent of doctorates.
- Hispanics' share of all degrees declines from 3.1 percent of bachelor's to 2.8 percent of master's to 2.5 percent of doctorates.
- American Indians' share of all degrees remains nearly stable at .39 percent of bachelor's, .36 percent of master's, and .31 percent of doctorates.
- Asian Americans' share of all degrees increases from 4.1 percent of bachelor's to 4.7 percent of master's to 5.3 percent of doctorates.

2. The number *and* share of bachelor's degree recipients increased nationally for Asians, Hispanics, and American Indians between 1977 and 1990. For African Americans, though, the number increased slightly, while the share declined. The results were generally less positive -- and, for African Americans, negative -- for master's degrees and Ph.D.s.

- The share of all **bachelor's** degrees earned by Asians more than doubled; the share earned by Hispanics increased by 40 percent; the minuscule share earned by American Indians increased by 10 percent; and the share earned by African Americans declined by more than 11 percent.
- For Asians, Hispanics, and American Indians the increase in share of **master's** degrees awarded did not keep pace with the increase in share of bachelor's degrees awarded. The share of master's degrees earned by Asians less than doubled; the share earned by Hispanics rose by 18 percent, less than half the increase in the share of bachelor's degrees; and the share earned by American Indians barely increased by six percent -- about half the

increase in the share of bachelor's degrees earned. For African Americans the news was worse: the *number* of master's degrees earned by African Americans *declined* by 31 percent, while the share *declined* by one-third.

- For Hispanics the increase in the share of **Ph.D.** degrees -- 51 percent -- outpaced the increase in the share of bachelor's and master's degrees. For Asians the increase in the share of Ph.D. degrees awarded -- 26 percent -- did not keep pace with the increase in share of bachelor's or master's degrees. The tiny share earned by American Indians increased by 28 percent while the share earned by African Americans declined by 20 percent.

3. In the science and engineering fields, where there has been a historic underrepresentation of African Americans, Hispanics and American Indians, the pathways toward the Ph.D. differ for each minority group nationally. But at the critical junction where doctorates move to faculty tenure at four-year colleges and universities, there is a drop-off among *all* minority groups, including Asians, who are adequately represented at earlier points along the pipeline.

- African American, American Indian, and Hispanic shares of tenured science and engineering faculty at four-year colleges and universities around the country are considerably below their shares of bachelor's degree recipients in science and engineering. This is not true of Asians, for whom the share of tenured faculty is greater than the share of bachelor's degree recipients.
- However, all minority groups are represented at lower percentages among tenured science and engineering faculty at four-year colleges and universities than among employed science and engineering Ph.D.s. The comparison of percentage of tenured science and engineering faculty to employed science and engineering Ph.D.s is as follows:
  - Whites: 91.7 percent of tenured faculty to 85.4 percent of employed Ph.D.s;
  - African Americans: 1.6 percent to 2.1 percent;
  - Asians: 6.2 percent to 10.2 percent;
  - American Indians: 0.16 percent to 0.20 percent;
  - Hispanics: 1.5 percent to 1.7 percent.

4. Low faculty salaries have a greater effect than the quantity of minority Ph.D.s on the supply of minority faculty members in MHEC states.

- Increasing the supply of minority Ph.D.s would have only small effects on their representation rates among faculty members in MHEC states. In some cases, it would have negative effects.
- The supply of faculty is very responsive to earnings potential in academia. This responsiveness is much more pronounced among nonwhites as a group than among whites, especially in MHEC states.
- The reduction of minority faculty supply as a result of increased private sector wages is less than the increase in supply as a result of increased faculty salaries in MHEC states.
- Salaries of minority and majority faculty members are generally lower than the national

average in MHEC states.

5. MHEC states are exporters of Ph.D.s generally and -- to an even greater extent -- of minority Ph.D.s.

- Collectively, the institutions of higher education in MHEC states annually confer approximately 23 percent of all Ph.D.s produced in the nation.
- Almost two-thirds (63.5 percent) of the doctoral graduates produced in the Midwest are "exported" to other places.
- The Midwest is also an exporter of minority doctorates -- to a higher degree than for white doctorates. While 63.1 percent of white Ph.D.s produced in MHEC states are exported to other places, 66.7 percent of minority Ph.D.s produced in MHEC states are exported.
- This exporter effect is higher among minority doctorates employed in academia than among white doctorates employed in academia. Among MHEC-produced white Ph.D.s who are employed in academia, 38.8 percent were employed in MHEC states in 1991. For MHEC-produced minority Ph.D.s employed in academia, the percentage who were employed in MHEC states ranged from 32.9 percent for African Americans to 36.4 percent for American Indians.

6. Minority faculty members believe a "chilly climate" exists on many campuses in MHEC states.

Minority faculty members expressed the following key concerns:

- Racial, gender and ethnic bias;
- Isolation and unsupportive work environment;
- Lack of information about tenure and promotion;
- Language/accent barriers;
- Lack of mentors and lack of support from superiors.

Despite concerns about a chilly climate for minority faculty members, most of those interviewed indicated they plan to stay in academia.

7. Midwestern institutions reported few organized programs for supporting minority faculty development, although a few institutions reported "exemplary programs."

Despite the fact that 77 percent of the 487 Midwestern institutions surveyed reported minority faculty retention as a high or very high priority, most offer little organized support for supporting minority faculty development:

- Only six percent have a special office for minority faculty professional development;
- Only nine percent offer funding for minority faculty mentoring programs;
- Only 20 percent offer what they judge as "excellent" support of faculty in recognizing diversity (such as supporting and valuing a faculty member's efforts to recruit minority students);

- Fifty-four percent said they allocate less than five percent of their faculty development budgets for minority faculty. Forty-three percent allocate less than one percent for minority faculty.

But 10 percent of the institutions surveyed reported exemplary programs for minority faculty recruitment and five percent for minority faculty retention.

CONCLUSIONS

Strategies for Increasing Minority Faculty Representation.

1. Since representation differs among various minority groups, various types of institutions and various states, strategies developed to increase minority faculty representation must address these differences.

2. Higher faculty salaries would improve the representation of currently underrepresented minorities in higher education. Increasing the salaries of faculty members in MHEC states would have a greater effect on improving the representation of minority faculty members in MHEC states than would increasing the supply of minority Ph.D.s alone.

3. Because the Midwest has been a historic exporter of minority doctorates, steps to encourage Midwest-produced minority doctorates to stay in the region would help increase representation of minority faculty in MHEC states.

Such steps would likely have a greater effect on increasing the representation of minority faculty in MHEC states than would strategies simply to increase the production of minority Ph.D.s. If there are no attempts to recruit and retain Midwestern minority graduates as faculty members in the region, there can be little confidence that Midwestern institutions will directly benefit from participation in a national or regional minority Ph.D.-production effort.

4. Minority faculty development through networking, mentoring and research support would likely increase representation of minority faculty, because it would improve the attractiveness of the Midwest as a place to work relative to other parts of the country.

A number of minority faculty members recommended focusing on retention through the development of a more positive and encouraging professional environment, and through targeted faculty development initiatives. The main recommendations advocated networks of minority scholars, senior faculty mentors, and support for research and publications.

RECOMMENDATIONS

1. Salaries: MHEC should initiate a regional effort to assist institutions and states in making the case for raising faculty salaries to be more competitive with other regions and with private industry.

- MHEC should call attention to the significant role of market forces in the supply of minority faculty and disseminate information on regional faculty salaries.
- MHEC should draft model industry/higher education partnerships. One approach could encourage joint appointments of personnel in faculties and industry. Another approach could encourage more industry-sponsored faculty chairs. Both could help increase salary levels of faculty members.

2. Retaining Midwestern Ph.D.s: MHEC should initiate an effort to assist institutions in the region to recruit and retain a higher percentage of MHEC-produced minority Ph.D.s.

3. "Chilly climate": MHEC should convene a regional summit of higher education leadership to identify problems of chilly climates on campuses for minority faculty members.

A summit would offer the opportunity:
- for minority faculty members to share their experiences related to campus climates and help identify the factors that exacerbate chilly climates;
- to elevate the consciousness of the nature and scope of chilly climates on campuses;
- for faculty members and other higher education officials to develop strategies to improve the climate for minority faculty members;
- to highlight successful practices and initiatives for dealing with climate issues.

4. Demonstration projects: MHEC should seek proposals from teams of institutions for demonstration projects that would develop, implement, and extend successful models of improving the climate and reducing turnover among minority faculty members. Using grant money, MHEC would select proposals to fund and then disseminate information on successful programs.

5. Pipeline efforts: MHEC should support further evaluation of the workings of pipelines and the strengths and cost-effectiveness of various approaches for various minority groups. MHEC should then propose ways to refine pipeline approaches.

THE RESEARCH APPROACH

RESEARCH QUESTIONS

The research for this project focused on three fundamental questions: To what extent is there an underrepresentation of minority faculty in Midwestern higher education? What are the causes of this underrepresentation? And, what strategies might be employed to increase minority faculty representation in Midwestern higher education?

Extent of Underrepresentation

Several definitions of minority faculty "underrepresentation" were reviewed to identify the most appropriate measurement methodology for use in assessing the extent of underrepresentation in Midwestern higher education. The main definition utilized in this analysis is the ratio of the percentage of faculty from specific demographic groups to the percent of the general population ages 24 to 70 who are members of that same group. This measure was applied to the entire United States, to the aggregate of MHEC member states, and to individual MHEC states. The population subsets were ethnic/racial group, gender, age cohort, immigration status, citizenship, and by individual member state.

Another measure referenced in the study is a comparison of MHEC faculty members from specific groups to the percentage of individuals from those groups with master's degrees and doctorates.

Causes of Underrepresentation

Many explanations are given for the underrepresentation of minorities in higher education. These range from shortages of qualified applicants for faculty positions to institutional barriers that discourage minority faculty recruitment and/or retention. This study reviews minority faculty recruitment trends and practices in the Midwest and in the United States as a whole. In addition, a variety of factors that are said to either promote or impede long-term faculty retention within academic departments and institutions were examined.

The study also examined the relationship of minority faculty supply to minority Ph.D. production rates, differential wage rates between academia and the private sector, promotion and tenure rates of minority faculty, and institutional retention rates for minority faculty over time.

Strategies for Reducing Underrepresentation

The most frequently employed strategy for increasing the supply of minority faculty is to increase the production of minority doctorates. This approach has received a great deal of national attention for several years. Other less frequently cited strategies include: actively promoting higher education careers to young minority scholars in their K-12 years; increasing academic utilization of minority Ph.D.s currently employed outside of higher education; concentrating on the career retention of practicing minority faculty; and creating innovative alliances between industry and academia to reduce market competition for faculty.

RESEARCH METHODOLOGIES

Three research methodologies were utilized in the investigation: survey data analyses, interviews and case studies, and documentary analyses of institutional practices.

The survey data analyses examined the dynamics of the labor market facing minority faculty in the United States and in the Midwest. These analyses proved useful in assessing the likely success of specific initiatives within broad categories of academic discipline and institution.

Case studies were conducted to identify what works and what doesn't work in terms of minority faculty development and retention in specific organizational contexts. These studies provided information on the various factors that contribute to institutional support for, or resistance to, minority faculty development and retention. The interviews of successful minority faculty helped to explain and clarify the survey results.

The documentary analyses provided extensive information on: a) institutional perceptions of the problems of minority faculty underrepresentation; b) institutional strategies regarding minority faculty recruitment and retention; and c) institutional practices concerning faculty development in general and minority faculty development in particular.

DATA

Information for assessing the patterns and causes of minority faculty underrepresentation in Midwestern higher education as well as remedial strategies employed by institutions was compiled from four sources.

The first source was interviews with a sample of minority faculty and administrators from Midwestern institutions. These interviews elicited perceptions and assessments of institutional practices and/or circumstances associated with minority faculty recruitment and retention. The second information source was a regional survey of faculty development practices sent to all institutions in MHEC states. The survey helped to identify recruitment and retention barriers, and corrective programs and practices.

A third information source was the Public Use Micro Sample Census data. This data base enabled an analysis of patterns of underrepresentation and those market factors that appear to contribute to it.

The fourth source of information was a review of exemplary programs for minority faculty recruitment and/or retention that were identified by peer institutions in the Midwest as having been successful in increasing minority faculty representation in academia.

Minority Faculty Interviews

Individual interviews were conducted with 55 minority faculty. Nine additional faculty participated in two focus groups, yielding a data base of 64 faculty. This sample includes faculty of color from institutions in seven MHEC states (Illinois, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio).[1] The interviews were conducted using the instrument attached as Appendix A, and were tape recorded. The interviews solicited the participants' views on:

- their reasons for pursuing an academic career;
- the pathways that led them to their current position;
- their professional development experiences;
- their effectiveness in their current position;
- their experiences as faculty members;
- their general experiences in the academic work place.

The interviewees were asked about their future plans and whether they expected to leave academia. They were also asked to share their ideas about strategies for improving minority faculty recruitment and retention.

Each interview was transcribed and entered into a hypertext data analysis program. A summary of the results is attached as Appendix B.

Faculty Development Survey

A faculty development survey was sent to all institutions of higher education in MHEC states. The survey instrument was pretested during the summer of 1994 and included a full range of questions related to faculty development. A total of 486 surveys were returned for a response rate of 68 percent. Three-quarters of the responding institutions comprised community colleges or technical colleges and baccalaureate institutions. Ten percent of the respondents were universities and 10 percent were professional schools. Just over half were public institutions (51 percent). Almost two-thirds (65 percent) had undergraduate enrollments of under 2,500 students. Nine percent had undergraduate enrollments of over 10,000 students.

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[1] Wisconsin had not joined the Commission at the time of the interviews.

This response pattern was found to be representative of the mix of institutions in the Midwest.

The survey included questions on the organization and funding of faculty development programs in general and minority faculty development programs in particular. The institutions were also to share their perceptions regarding a) the effectiveness of faculty development activities, b) priorities for minority faculty recruitment and retention, c) faculty and administrator turnover rates, and d) institutional difficulties in hiring and retaining minority faculty. The survey questionnaire and statistical summaries of responses are attached as Appendix C.

Census Analysis

The Public Use Micro Sample (PUMS) tapes for the United States and for specific MHEC states were utilized to analyze national and regional trends and patterns of minority faculty representation in higher education. The U.S. sample constituted a one percent sample of all returns from the 1990 census. A three percent random sample was taken of the U.S. sample base to compute representation ratios and to perform an econometric analysis. All persons over 24 and under 70 years of age who held master's or Ph.D. degrees were separately identified in the U.S. sample base. This sub-group was used in calculating predictions of faculty earnings and in estimating determinants of faculty representation ratios. Finally, five percent state-based samples were combined to estimate representation ratios and to perform analysis of higher education patterns in MHEC states. The results of these analyses are presented in Appendix D.

Exemplary Programs

Information was compiled on 26 minority faculty recruitment and retention initiatives acknowledged as exemplary by Midwestern institutional leaders and faculty and from the review of literature. Of the 26 programs, nine are general programs eligible in all regions of the country, including MHEC. The others are institution or state specific. Twenty-one are targeted for women and ethnic minorities, three toward African Americans, one toward American Indians, and one toward Latinos.

The key features and operations of these exemplary programs were reviewed. Program documents, brochures, evaluations, and related reports on each program were examined. Program administrators were interviewed in many of the programs as well. A matrix summary of these initiatives, their innovative features, and information on outcomes achieved is attached as Appendix E.

Other Data Sources

Other data sources utilized in the research include a special tabulation of the National Science

Foundation's Survey of Ph.D. Recipients (results presented in Appendix F); EEOC employment data from higher education institutions in MHEC and other states of the Midwest (results included in Appendix D); 1990 published census data (results included in Appendix D); and more than 150 articles and books on minority faculty retention and recruitment.

FINDINGS

EXTENT OF MINORITY REPRESENTATION

1. Varying definitions of representation yield alternative estimates of the degree of underrepresentation of minority faculty.

Several definitions of "underrepresentation" of minority faculty are in common use.[2] These range from restricted comparisons of narrow subsets of faculty and limited populations to those that include broad categories of faculty and populations. This research employs two different data sets to examine both a broad definition of minority representation and a more restricted definition.

2. When measured in comparison with the percentage of the entire population, representation among full-time faculty in Midwestern Higher Education Commission (MHEC) states differs by minority group: African Americans are severely underrepresented in all states; American Indians are underrepresented in seven out of eight states; Hispanics are underrepresented in six of eight states; Asian Americans are not underrepresented.

EEOC Counts

The percentages of faculty by race in each MHEC state were computed using data compiled by the U.S. Equal Employment Opportunity Commission on full-time faculty.[3] The racial breakdown of each state's population was also calculated based on 1990 published Census reports.[4] The ratio of the percent of faculty accounted for by a specific racial group to that group's percentage in the general population was defined as the group's "faculty representation ratio." For example, in Illinois, Hispanics represent 7.8 percent of the population but only 1.6 percent of the full-time faculty. Thus, the Hispanic representation ratio in Illinois is .21. A ratio of 1.0 would indicate the same representation among faculty as among the general population. A ratio of less than 1.0 would indicate underrepresentation and a ratio of more than 1.0 would indicate "overrepresentation."

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[2] Typical measures include: relative to the general population; relative to the national availability of qualified persons; relative to the expected availability ("fewer in a particular job group than would reasonably be expected by their availability"); or relative to the appropriate civilian labor force (which could be geographically determined). See Cooper and Smith. The Department of Labor's Office of Federal Contract Compliance Programs (OFCCP) uses the definition "having fewer minorities or women in a particular job group than would reasonably be expected by their availability." (41 CFR section 60-2.11, p. 118). It refers to "under utilization" and not "under representation."

[3] Racial groupings obtained from the EEOC data are: Non-Hispanic Whites; Non-Hispanic Blacks; Asians; American Indians; and Hispanics. Data are derived from 1991 EEO-6 Higher Education Staff Information, Table III.

[4] Population data include people of all ages and come from the U.S. Department of Commerce, Bureau of the Census, General Population Characteristics: Sex, Race, and Hispanic Origin, 1990. Thus the comparison between the EEO-6 data, which refers to the fall term of the current academic year (1990-91), and the Census, which refers to the count during the spring of the 1990, do not overlap precisely.

The general patterns of underrepresentation are shown in Figure 1.[5]

The representation ratios for African Americans range from .21 in Kansas to .49 in Minnesota. The representation ratios for American Indians range from .24 in Nebraska to .94 in Illinois. There are wide variations in the representation ratios for Hispanics and Asians among MHEC states. The representation ratios for Hispanics are less than 1.0 in six of the eight MHEC states: Illinois, Kansas, Michigan, Nebraska, Ohio and Wisconsin. They are greater than 1.0 in Missouri (1.07) and Minnesota (1.55). The representation ratios for Asians are well above 1.0 in all eight MHEC states. The lowest ratios in Illinois (2.41) and Minnesota (2.22). The highest ratios are in Ohio (6.00) and Missouri (6.67).

Note, however, that the measure used here includes persons of all ages and excludes part-time faculty. Thus the measure of underrepresentation will be larger, all other things being equal, in populations with large numbers of younger minorities and many part-time workers. The computations using the Census Public Use Micro Sample address this concern.

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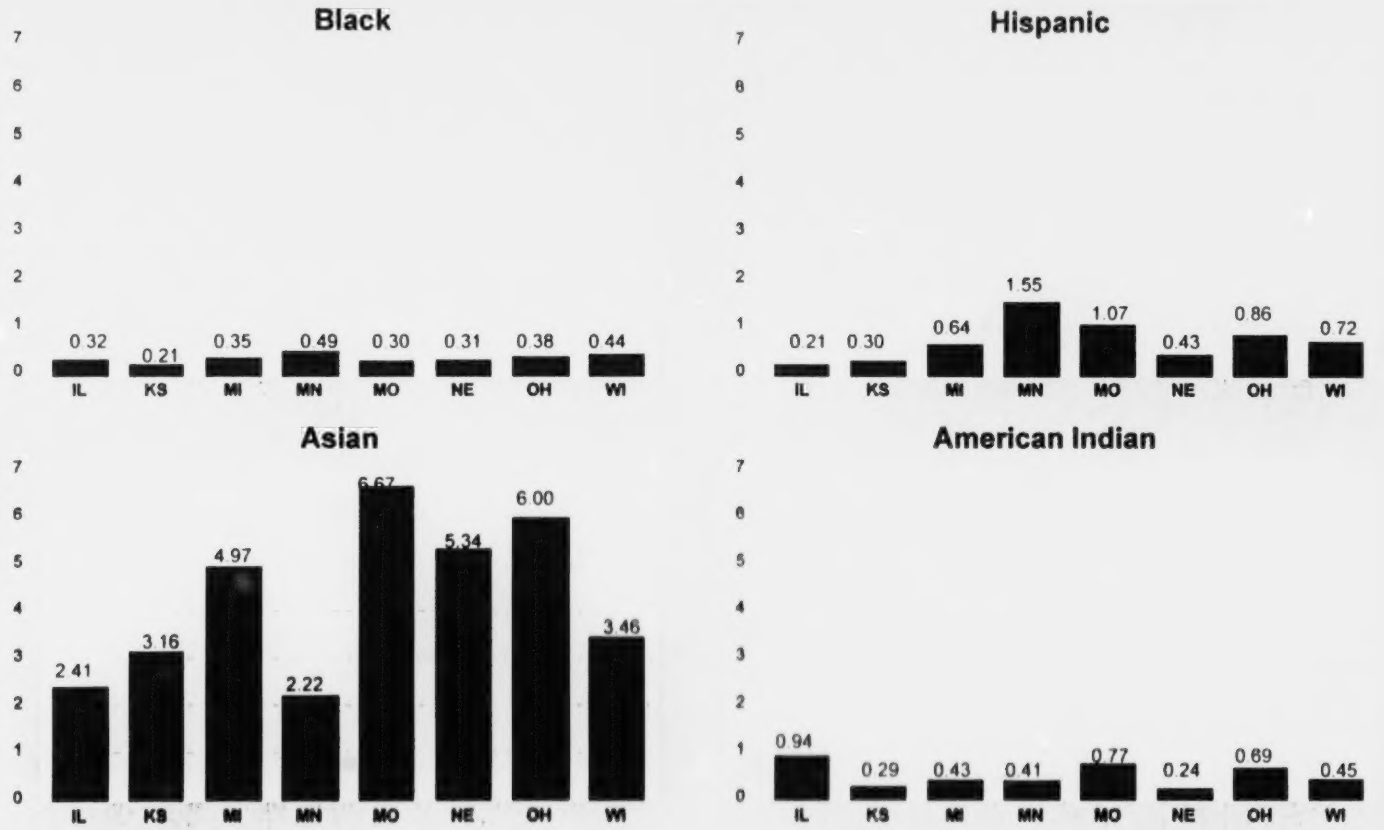
[5] The full details of the EEOC counts are provided in Table D.1 of the appendix. This figure compares MHEC States to the entire US using census data.

Figure 1: Faculty Representation Ratios in MHEC States



The Faculty Representation Ratio is the percentage of total faculty accounted for by each race(from EEOC file) divided by the percentage of the population accounted for by each race (from the 1990 Census).
the 1990 Census

Source: Table D.1 Faculty data include full-time faculty only and are compiled by the Equal Employment Opportunity Commission from 1991 EEO-6 Higher Education Staff Information, Table III. Population data include people of all ages and come from the U.S. Department of Commerce, Bureau of the Census, General Population Characteristics: Sex, Race, and Hispanic Origin, 1990.

3. Comparing the minority groups' faculty shares to their shares of population ages 24 to 70, the most significant pattern of underrepresentation in MHEC states occurs for African Americans and American Indians. Hispanics are underrepresented to varying degrees across most MHEC states. Asians, in contrast, are represented at higher proportions among faculty than among the population in all eight MHEC states.

Public Use Micro Sample (PUMS) Counts

The 1990 Census Public Use Micro Sample (PUMS) represents a sampling of all long Census returns, including information on industry and occupation for employed persons.[6] A "faculty member" is defined as a person ages 24 to 70 years old who lists his or her occupation as postsecondary education teacher, who is not in school, and who reports the industry classification of "college or university." Thus, unlike the EEOC data, which is based on institutional reporting mechanisms, the PUMS counts are generated from self-reports of persons who identify themselves as employed faculty. Accordingly, this definition may include both full-time and part-time faculty.

The representation ratio used here is the ratio of the percent of faculty accounted for by a specific racial group to the percent of persons 24 to 70 in the general population accounted for by that group. Thus, this ratio more broadly covers faculty but more narrowly defines the comparison population group. Therefore, it can be considered a more conservative measure of minority faculty underrepresentation.

Despite differences in how the representation ratios are computed, the basic story remains the same: substantial underrepresentation of African Americans and American Indians; significant underrepresentation of Hispanics in certain states; and no apparent underrepresentation among Asian/Pacific Islanders.

Even with this more conservative measure of representation, the PUMS computations reveal the same patterns of underrepresentation as identified in the EEOC data. In MHEC states, as in the nation as a whole, African Americans and American Indians are severely underrepresented among faculty. The representation ratios for African Americans and American Indians are lower in MHEC states than nationally. The ratios for African Americans are .39 in MHEC states and .45 in the nation as a whole; for American Indians they are .50 in MHEC states and .57 nationally.[7]

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[6] The analysis below uses the full 5 percent sample for states but a 3 percent sample of the 5 percent sample for the entire US.

[7] These calculations are presented in Appendix D, Table D.4. Note that we have performed the calculations for both race and race/ethnicity: a) whites, blacks, American Indians, Asians, other races; and b) white non-Hispanic; black non-Hispanics; American Indian non-Hispanics; Asian/Pacific Islander non-Hispanics; other race/non-Hispanic; and Hispanics.

These findings, when broken down by state, confirm the patterns revealed in the EEOC data, even though the representation ratios are consistently higher (for most underrepresented groups) using the more conservative measure adopted here. For example, whereas the representation ratios for African Americans using the EEOC measure are .35 in Michigan and .44 in Wisconsin, they are .36 in Michigan and .62 in Wisconsin using the PUMS measure. The representation ratios for Latinos are .21 in Illinois using EEOC and .41 using PUMS. They are .30 in Kansas using EEOC and .60 using PUMS. The representation ratios for Asian/Pacific Islanders are 2.41 in Illinois using EEOC and 2.52 using PUMS. They are 3.16 in Kansas using EEOC and 3.00 using PUMS.

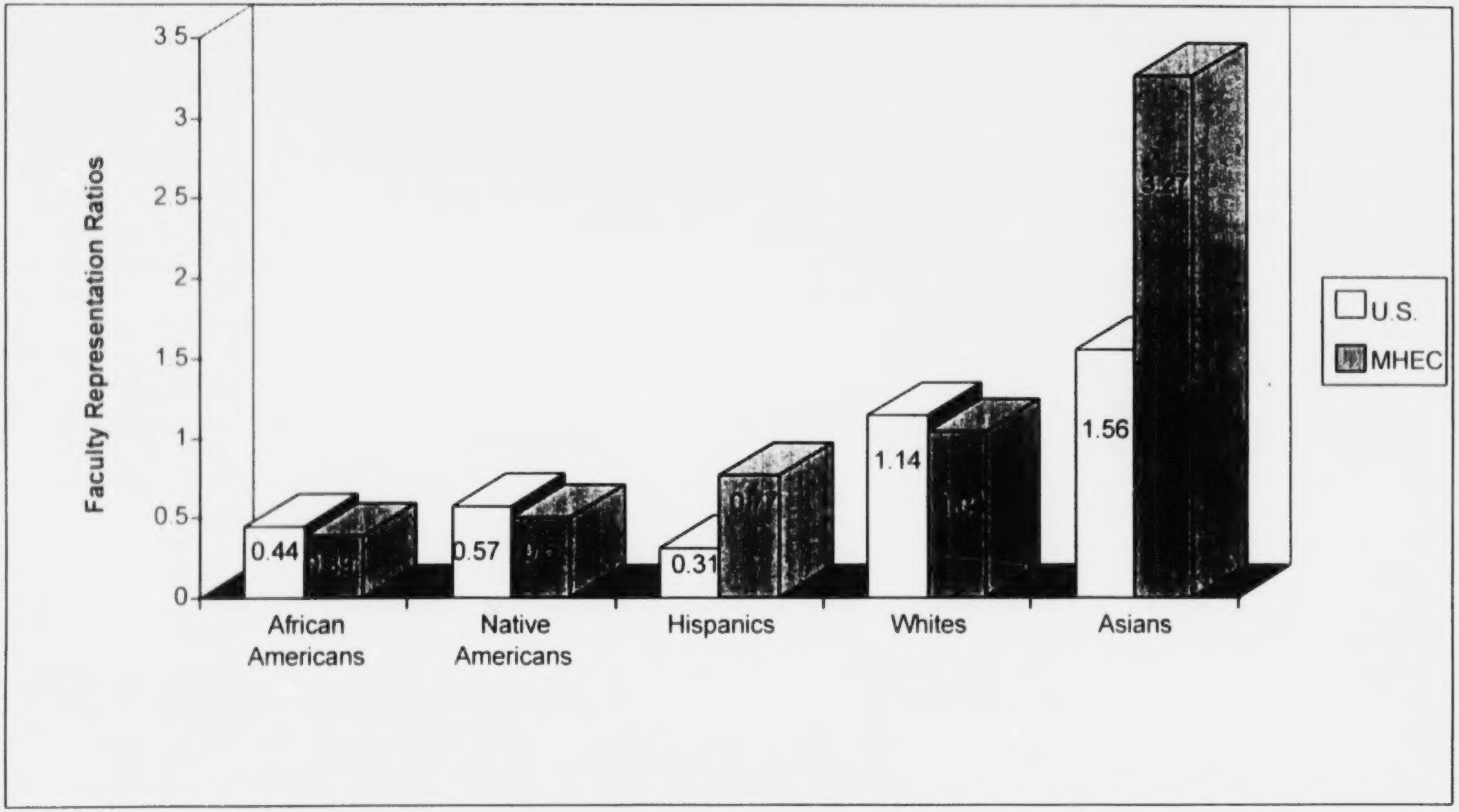
4. Moreover, African American and American Indian faculty representation in MHEC states is lower than the national average, using these same measures. The representation of Asian/Pacific Islanders and Hispanics in MHEC states is above the national average, although representation of Hispanic males is lowest of all racial/gender groups.

Figures 2 shows the following faculty representation ratios: African Americans: .44 nationally vs. .39 in MHEC states; American Indians: .57 nationally vs. .50 MHEC; Hispanics: .31 nationally vs. .77 MHEC; Asians: 1.56 nationally vs. 3.27 MHEC; and whites: 1.14 nationally vs. 1.04 MHEC.

Figure 3 shows that the youngest African Americans, American Indians, and Hispanics are most underrepresented.

Figure 4 shows representation of Hispanic males (with a ratio of .36) is the lowest of all racial groups broken down by gender.

Figure 2: Faculty Representation Ratios
U.S. vs. MHEC States



Faculty representation ratio is the percentage of faculty among MA's and Ph.Ds, ages 24-70 within each race divided by the percentage of total faculty among MA's and Ph.Ds, ages 24-70, within the U.S. and Midwest.

Source: Table D.4 (PUMS, 1990)

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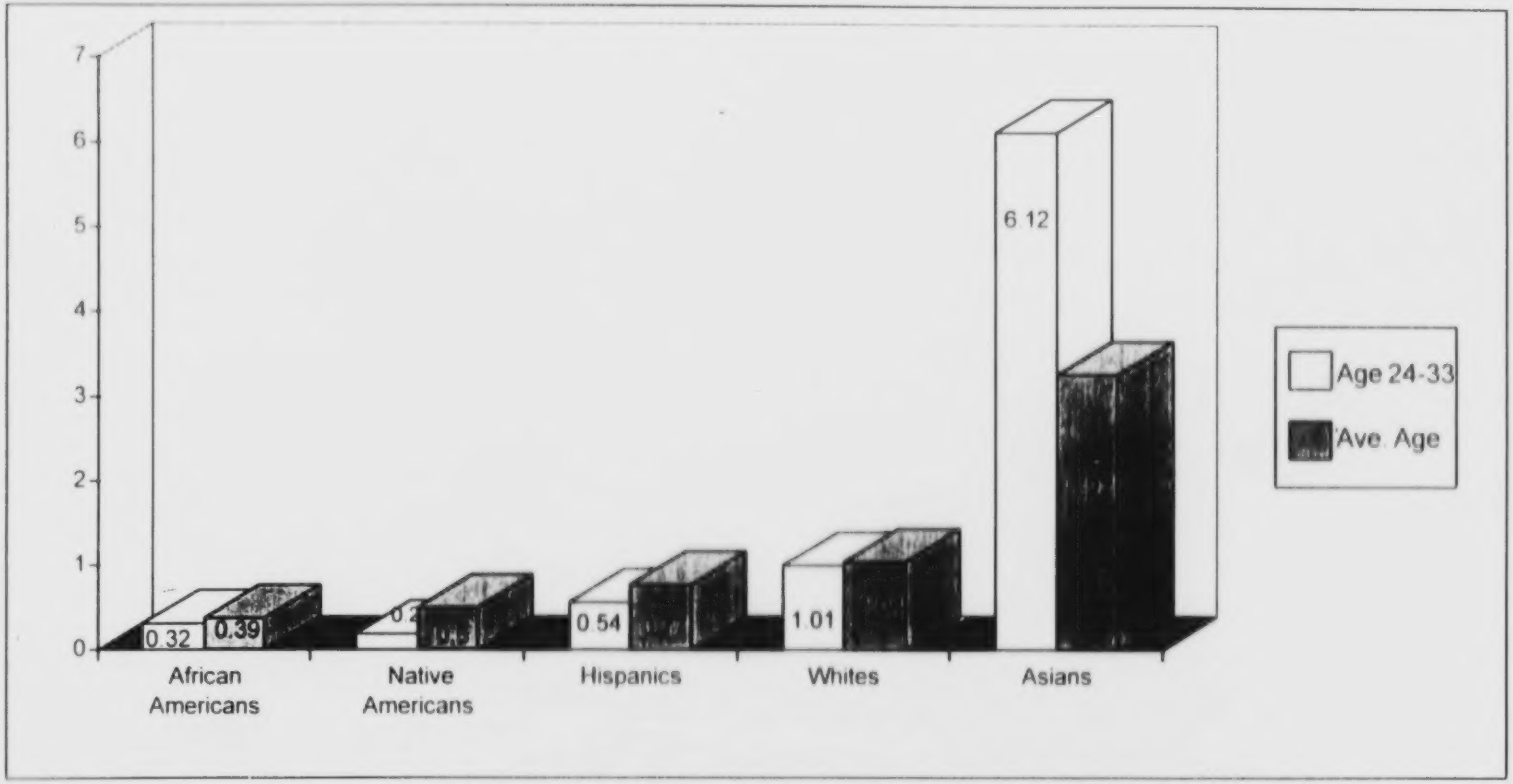
Figure 3: Faculty Representation Ratios by Age

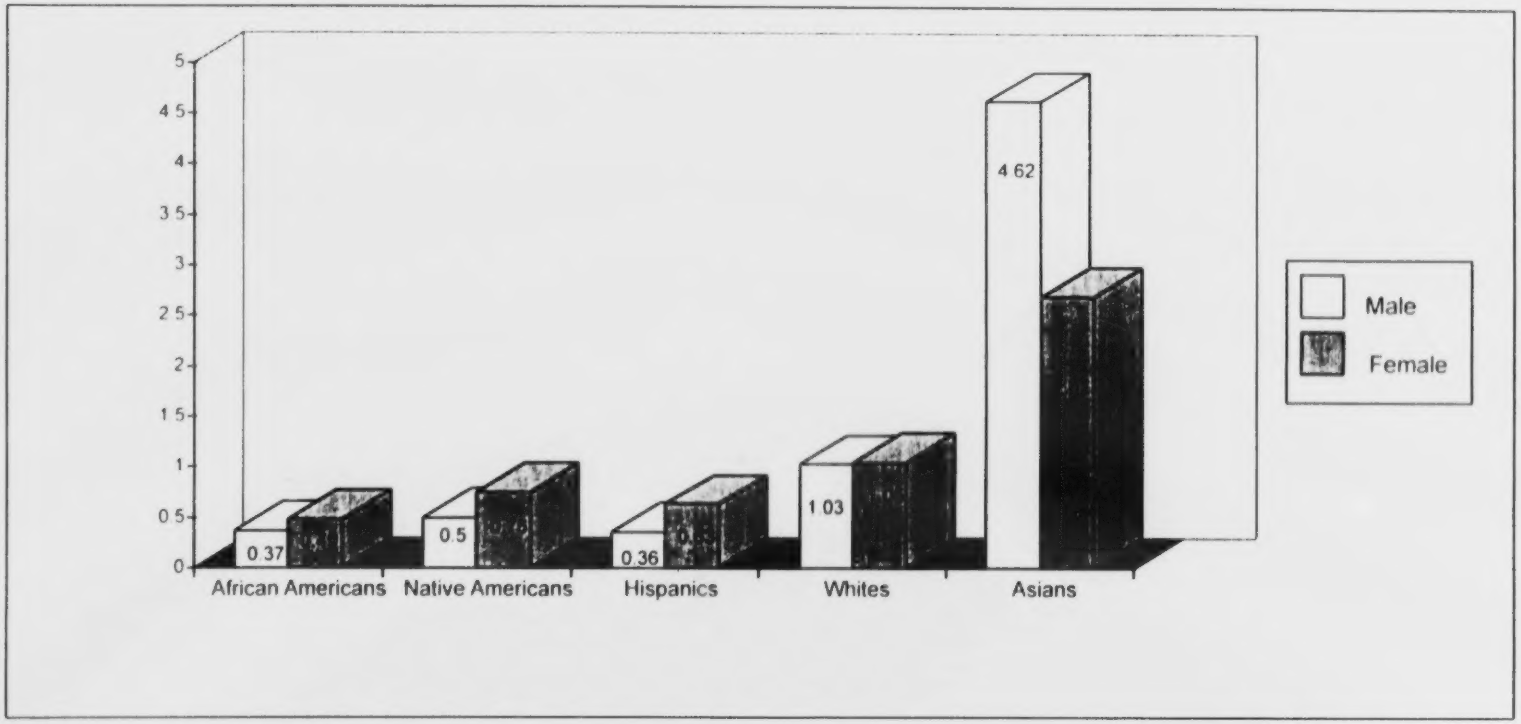
MHEC States



The Faculty Representation Ratio is the percentage of faculty among MA's and Ph.Ds, ages 24-70, within each race divided by the percentage of total faculty among MA's and Ph.Ds, ages 24-70, in the MHEC States. Computed separately for 24-33 years old and for the average age.

Source: Table D.4 and D.11.

Figure 4: Faculty Representation Ratios
MHEC States



The Faculty Representation Ratio is the percentage of faculty among MA's and Ph.Ds, ages 24-70, within each race divided by the percentage of total faculty among MA's and Ph.Ds, ages 24-70, within MHEC States.
Computed separately for each sex.

Source: Table D.6.

5. When measured in comparison with the percentage of individuals with master's or Ph.D. degrees, nonwhites as a group are underrepresented as faculty members in MHEC states.

The representation ratios calculated in Table D.19 in the appendix show that nonwhites as a group are only 76 percent as prevalent among faculty members in MHEC states as among people with master's or Ph.D. degrees in MHEC states. In contrast, whites are nearly 16 percent *more* prevalent among faculty members in MHEC states than among people with master's or Ph.D. degrees in MHEC states.

6. National data show that African American, American Indian, and Hispanic faculty representation in science and engineering (which includes social sciences, physical sciences, and engineering fields) is lower than in other fields. MHEC data also show these patterns.

According to the U.S. Department of Education, 33 percent of full-time regular instructional faculty in institutions of higher education are employed in science and engineering fields. Blacks, Hispanics and American Indians who account for about 6 percent of all faculty, comprise less than 3 percent of engineering faculty, 3.5 percent of natural science faculty, and 9 percent of social science faculty. Together, African Americans, Hispanics and American Indians account for about 3.7 percent of science and engineering faculty.[8] Thus, science and engineering fields are severely underrepresented by this subset of minority faculty.

African Americans, Native Americans, and Hispanics are also underrepresented in the science and engineering fields in the MHEC states. Among persons with earned Ph.D.s in science and engineering and employed in MHEC higher education institutions, 1.9 percent were African American, .1 percent were American Indian, .3 percent were Mexican American, .1 percent were Puerto Rican, and 1 percent were other Hispanics, yielding a total of only 3.4 percent of all science and engineering faculty with Ph.D.s. in the MHEC states. This figure is considerably smaller than the average for the nation. Of all science and engineering Ph.D.s employed in higher education nationally, 4.7 percent are black, Native American or Hispanic.[9]

CAUSES OF UNDERREPRESENTATION OF MINORITY FACULTY

The researchers explored four possible explanations for the underrepresentation of minority faculty in higher education:

- **The pipeline problem.** In its simplest version, the pipeline problem explanation is based on the assumption that there are not enough qualified minority faculty candidates because of drop-off at various stages along the pipeline from secondary school to completion of the doctorate.

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[8] U.S. Department of Education, National Survey of Postsecondary Faculty (NSOPF), 1987-88, Table 22, (April, 1991).

[9] Computations based on Table 1, Appendix F, from unpublished tabulations, 1991 Survey of Doctorate Recipients, National Research Council.

- **The market forces problem.** Related to the pipeline explanation, the market forces argument supposes that faculty supply is a function of faculty salaries and Ph.D. production, which depends in turn on expected wages in academia versus competing occupations. Explicitly or implicitly, economists argue that increased wages in other sectors of the economy have driven talented minorities out of the academy.[10]

- **The "chilly climate" factor.** This explanation ascribes the underrepresentation of minorities in higher education to the culture of white male-dominated institutions that do not value the contributions or the presence of women or people of color.

- **The turnover problem**. The problem in this view is not one of inability to recruit tenure-track candidates but rather, the failure to promote and retain minority faculty. This problem is often related to the absence of adequate mentor programs, the nature of the tenure and promotion process, and other institutional circumstances that neglect minority faculty development.

While all four explanations were investigated, additional research is needed to indicate the impact of minority faculty turnover on minority faculty representation. Preliminary analysis based on information from the survey of higher education institutions suggests that the "exit rate" -- that is, the ratio of faculty leaving an institution over the past three years compared with new hires -- for white faculty members is higher than for minority faculty members. This of course is due in part to the large numbers of white faculty who are retiring. The results differ somewhat by type of institution and by rank. However, the exit rate analysis does *not* reflect the base of faculty members with which the number of people leaving or being hired can be compared.

(For example, if five minority faculty members left an institution and 10 were hired, the exit rate would be 0.5. And if 10 white faculty members left an institution and 10 were hired, the exit rate would be 1.0. So the exit rate for minority faculty members would be half that for white faculty members. But if there were only 10 minority faculty members to start with, compared with 100 white faculty members, the loss of minority faculty would be 25 percent, or 5÷ [10+10], while the loss of white faculty would be about 9 percent, or 10÷[100+10] yielding a minority faculty loss rate more than two and one half times larger than the white loss.)

Because the survey did not produce information on the base number of faculty members, the researchers could not complete a thorough analysis of turnover as a cause of underrepresentation of minority faculty. Further research is needed on this issue.[11]

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[10] Richard Freeman. The Overeducated American New York: Academic Press, 1976. Richard Freeman and David Breneman. Forecasting the Ph.D. Labor Market 1914 Washington DC: National Board on Graduate Education.

Pipeline problem

1. African Americans, Hispanics and American Indians are substantially underrepresented nationally along virtually every step of the collegiate pipeline culminating in the doctorate. Asians are represented at higher proportions than in the population all along the pipeline.

As Figure 5 shows, the main drop-off point for African Americans, Hispanics, and American Indians is in the percentage of bachelor's degrees received by people in each group. African Americans continue to drop off along the pipeline all the way through the Ph.D. level, with their representation level dropping at each step along the way. Hispanics, underrepresented among bachelor's degree recipients, face declining shares of master's degrees and doctorates as they move along the pipeline.

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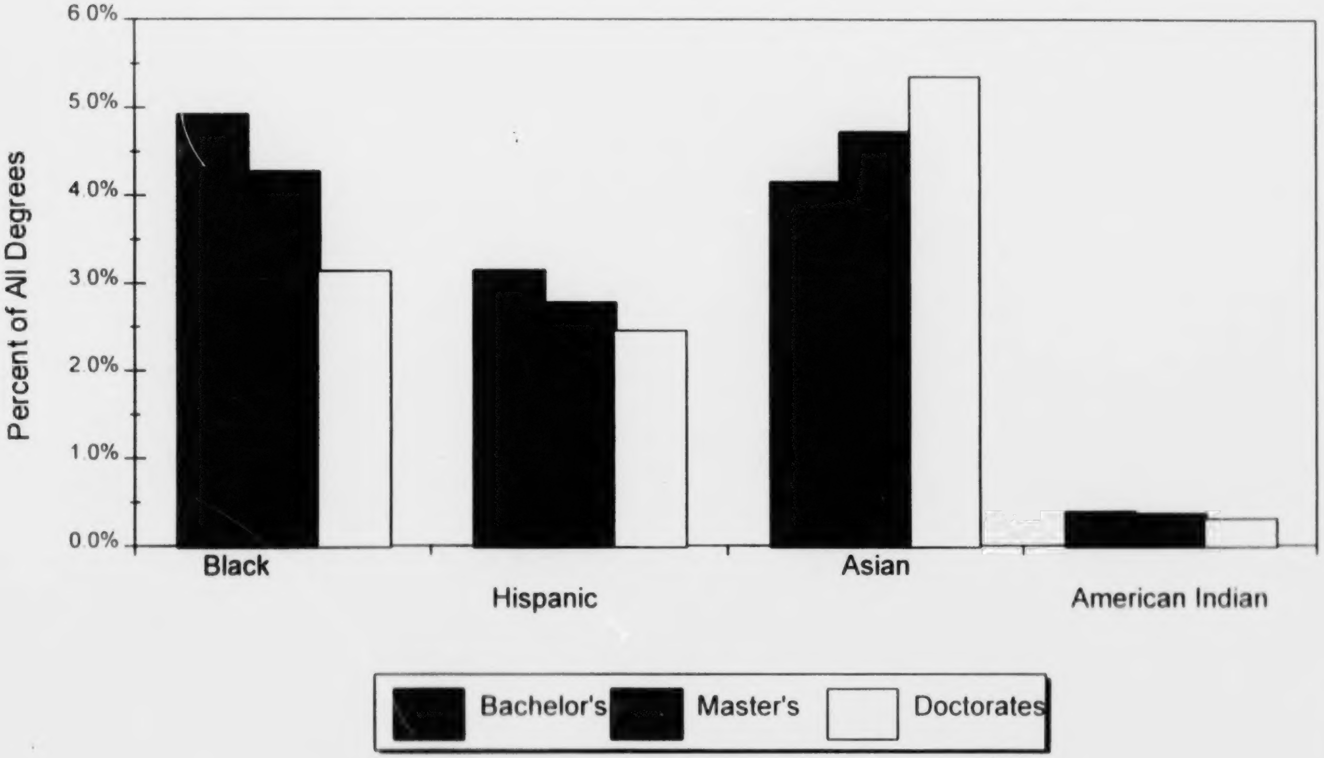
[11] For a summary of the analysis of faculty hires vs. faculty leavers using the MHEC Faculty Survey data, see Appendix D.

Figure 5: Pipeline From Bachelor's to Doctorate All Fields, U.S. Citizens, 1990



Source: U.S. Department of Education, National Center for Education Statistics, Digest of Education Statistics 1991, tables 245, 247, and 249 (for 1977-1987 data) and "Race/Ethnicity Trends in Degrees Conferred by Institutions of Higher Education: 1980-81 through 1989-90, tables 3-7 (for 1989 and 1990 data) (based on IPEDS/HEGIS surveys of degrees conferred).

The small percentages of American Indians in the bachelor's pipeline become even smaller at higher degrees. Asians continue to make progress along the pipeline, obtaining ever higher representation through the Ph.D. level.

- African Americans' share of all degrees drops from 4.9 percent of bachelor's to 4.3 of master's to 3.1 percent of doctorates.
- Hispanics' share of all degrees declines from 3.1 percent of bachelor's to 2.8 percent of master's to 2.5 percent of doctorates.
- American Indians' share of all degrees remains nearly stable at .39 percent of bachelor's, .36 percent of master's, and .31 percent of doctorates.
- Asian Americans' share of all degrees increases from 4.1 percent of bachelor's to 4.7 percent of master's to 5.3 percent of doctorates.

As Figure 5 graphically shows, the pipeline problem is not identical for all racial groups, a point Bowen and Rudenstine have argued convincingly.[12]

2. The number *and* share of bachelor's degree recipients increased nationally for Asians, Hispanics and American Indians between 1977 and 1990. For African Americans, though, the number increased slightly, while the share declined. The results were generally less positive -- and, for African Americans, actually negative -- for master's degrees and Ph.D.s.

Bachelor's Degrees: In 1977, 928,228 persons earned bachelor's degrees from American higher education institutions in science, engineering, health fields, and other fields outside science-and-engineering fields such as education, arts and humanities, and business fields. Of that number, 13,907 were Asian, 58,700 were African American, 27,043 were Hispanic, and 3,328 were American Indians or Alaskan Natives. In 1990, 1.06 million persons earned bachelors degrees. Among the recipients, 38,027 were Asians, 59,301 were African American, 43,864 were Hispanic and 4,212 were American Indian.[13] The share of all bachelor's degrees earned by Asians more than doubled; the share earned by Hispanics increased by 40 percent; the minuscule share earned by American Indians increased by 10 percent; and the share earned by African Americans declined by more than 11 percent.

Master's Degrees: In 1977, 318,241 master's degrees were conferred in American higher education. Of this total, 5,145 degrees were awarded to Asians, 21,041 were awarded to African Americans, 7,071 were awarded to Hispanics, and 968 were awarded to American Indians. In 1990, of the 324,947 masters degrees earned, 9,994 were awarded to Asians, 14,473 were awarded to African Americans, 8,495 were awarded to Hispanics and 1,050 were awarded to American Indians. Thus, the share of master's degrees earned by Asians less than doubled; the *number* earned by African Americans declined by 31 percent, while the share declined by one-third; the share earned by Hispanics rose by 18 percent, less than half the increase in the share of bachelor's degrees; and the share earned by American Indians barely increased by six percent -- about half the increase in the share of bachelor's degrees earned.

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[12] Bowen and Rudenstine, *In Pursuit of the Ph.D. Princeton*, NJ: Princeton University Press, 1992.

[13] Appendix F, Table 1, Science and Engineering Degrees, by Race/Ethnicity of Recipients: 1977-1991, National Science Foundation NSF 94-306.

In other words, for Asians, Hispanics and American Indians the increase in share of master's degrees awarded did not keep pace with the increase in share of bachelor's degrees awarded. This slowing of the pipeline may be due to a number of market-related phenomena. It does hold dire consequences for the production of Ph.D.s and ultimately the supply of faculty. In the case of African Americans, the reversals mean not a *slowing* of the pipeline but an alarming *reversal* of the flow.[14]

Doctoral Degrees: There is an obvious time lag between the receipt of a bachelor's degree and the emergence in the faculty market with a Ph.D. However, the small growth of minority Ph.D.s awarded even between 1977 and 1990 reveals a substantial problem long in the making. There were 31,716 doctorates awarded in the United States in 1977. Of that number, 27,487 were awarded to U.S. citizens and permanent residents. Of those, 1,194 were African Americans, 910 were Asians, 474 were Hispanics, 66 were Native Americans. By 1990, there were 36,057 doctorates awarded in the United States, of which only 26,535 went to U.S. citizens or permanent residents. The totals awarded to African Americans, Asian Americans, Hispanics, and Native Americans were: 1,046; 1,006; 835; and 96.[15] In 1977, of all doctorates[16] awarded by U.S. universities, only 2.87 percent were to Asian Americans, 3.76 percent to African Americans, 1.49 percent to Hispanics, and 0.21 percent to American Indians. The remaining 91.67 percent went to whites and foreign-born candidates.

By 1990, there was some improvement. The Asian share increased to 3.61 percent; the American Indian share increased to 0.27 percent; and the Hispanic share increased to 2.25 percent. These comparisons represent relative increases of 25.9 percent for Asian Americans,

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[14] Of course, these predictions could be reversed if there are major year-to-year changes in the shares of bachelor and masters degrees awarded to minorities. For example, the absolute decline in master degrees awarded to African Americans -- on a long-term declining trend since the late 1970s -- was curbed in 1991, but barely so. In addition, much of the decline in shares in masters degrees can be attributed to increases in the share of all degrees awarded to non-citizens and persons of unknown race/ethnicity and not to increasing shares awarded to white non-Hispanic US citizens and permanent residents. See, Table 24, Science and Engineering Degrees by Race/Ethnicity of Recipients: 1971-1991, National Science Foundation, NSF 94-306

[15] Appendix Table 2-28. Earned doctoral degrees by race/ethnicity, field and citizenship: 1977-91. Science Resources Studies Division, National Science Foundation, Science and Engineering Doctorates: 1960-1991, Detailed Tables, NSF 93-301 (Washington, D.C.: NSF, 1993).

[16] Including science and engineering and non-science and engineering doctorates, but excluding professional degrees such as MD's, LL.D., and Ed.D.s.

27.9 percent for American Indians and 50.6 percent for Hispanics. Conversely, the African American proportion of total Ph.D. recipients dropped to three percent, representing a decline of 20.3 percent. The effect, then, is that the share of minority Ph.D. production increased by less than 10 percent, from 8.33 percent to 9.13 percent -- little change over a 13-year period. Thus, even without taking into account the time-gap between receipt of a bachelor's degree and receipt of a Ph.D., relatively small increases occurred in the minority shares of a declining pool of U.S. citizen and permanent resident Ph.D.s available to enter the academic job market.[17]

3. In the science and engineering fields, where there has been a historic underrepresentation of African Americans, Hispanics and American Indians, the pathways toward the Ph.D. differ for each minority group nationally. But at the critical junction where doctorates move to faculty tenure at four-year colleges and universities, there is a drop-off among *all* minority groups, including Asians, who are adequately represented at earlier points along the pipeline.

Science and engineering includes the social and behavioral sciences, natural sciences and engineering. In 1991 science and engineering Ph.D.s represented 64 percent of the Ph.D.s awarded by U.S. institutions of higher education. Of all Ph.D.s awarded to U.S. citizens and permanent residents, 57.9 percent were for science and engineering. Thus even though science and engineering fields represent only a third of all faculty fields in higher education, these fields represent the vast majority of doctorate degrees awarded.[18]

Figure 6 shows that African American, American Indian, and Hispanic shares of tenured science and engineering faculty at four-year colleges and universities around the country are considerably below their shares of bachelor's degree recipients in science and engineering. This is not true of Asians, for whom the share of tenured faculty is greater than the share of bachelor's degree recipients.

However, all minority groups are represented at lower percentages among tenured science and engineering faculty at four-year colleges and universities than among employed science and engineering Ph.D.s. The comparison of percentage of tenured science and engineering faculty to employed science and engineering Ph.D.s is as follows:

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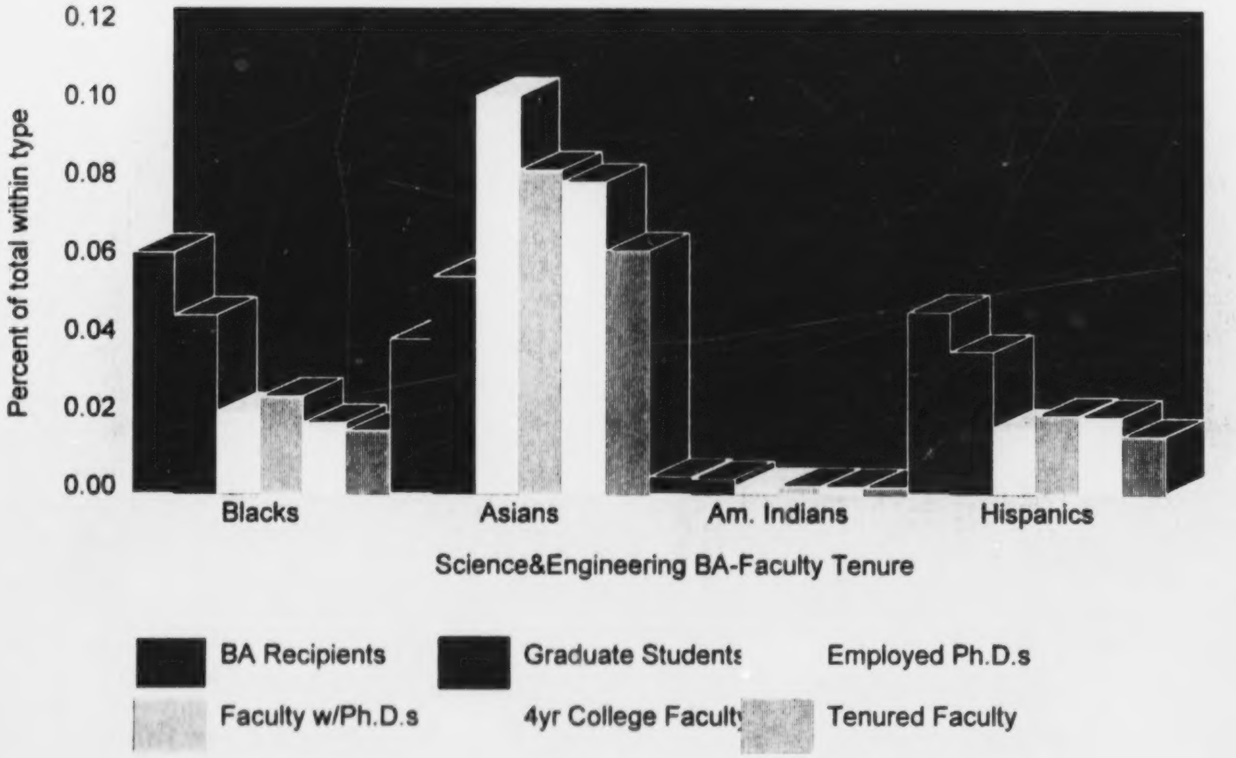
[17] Science Resources Studies Division, National Science Foundation. Science and Engineering Doctorates: 1960-91, Detailed Statistical Tables NSF 93-301 (Washington DC: NSF 1993).

[18] Note that the figures cited concerning the representation of science and engineering among full-time regular instructional faculty in institutions of higher education relate to all academic ranks and all types of institutions, including two-year colleges, law schools and other post-secondary institutions that may not require the doctorate for faculty positions. For example, in the fine arts, 51 percent of faculty have terminal master's degrees. In business and education, 39 and 38 percent of faculty have master's degrees as their highest degree. And, in the health professions 64 percent have master's degrees or a professional degree. U.S. Department of Education, National Survey of Postsecondary Faculty, 1987-88. Table 221 (April, 1991).

- Whites: 91.7 percent of tenured faculty to 85.4 percent of employed Ph.D.s;
- African Americans: 1.6 percent to 2.1 percent;
- Asians: 6.2 percent to 10.2 percent;
- American Indians: 0.16 percent to 0.20 percent;
- Hispanics: 1.5 percent to 1.7 percent.

As the figure clearly shows, there is a drop-off in the pipeline among all minority groups from receiving the Ph.D. to becoming a tenured faculty member at a 4-year college or university.

Figure 6: Pipeline From BA Recipiency to Tenure by Race and Ethnicity, U.S. Citizens 1991



Source: National Science Foundation, Science and Engineering Degrees, by Race/Ethnicity of Recipients: 1977-1991, NSF 94-306 (Arlington, VA 1994).

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Market Forces

1. A one percent increase in the production of Ph.D.s would only marginally increase the representation of African Americans, American Indians and Hispanics in higher education employment. While there would be a slight reduction in the representation ratios of Asian Americans, even that change would be quite small.

The recent downsizing of the defense industry and changes in the manufacturing sectors of the economy have resulted in significant joblessness among scientists and engineers. With many majority group members facing employment difficulties, efforts to increase minority enrollments in Ph.D. programs or promote policies that seem to provide advantages to minority group members have been curtailed.[19]

There is an extensive body of literature documenting the impacts of economic and market forces on the decisions to pursue the Ph.D. and to enter academia.[20] These forces include attractions to other professions such as law and medicine; preferences and perceptions about life in academia and the demands needed to enter the profession;[21] the high cost of graduate education;[22] and a variety of other deterrents to the pursuit of the Ph.D.[23] Of course, for most faculty positions, particularly at major research universities, the Ph.D. is a required credential. Thus, factors that arise as barriers to the pursuit of the Ph.D. also work to limit the flow of faculty into academia.

Ronald Ehrenberg, one of the nation's leading analysts of academic labor markets, concludes that market prices -- i.e., the earnings in academia -- are among the strongest determinants of the production of Ph.D.s and, indirectly, of the supply of faculty. He surveyed the wide range of econometric evidence on the determinants of Ph.D. production and concluded that Ph.D. supply is extremely responsive to earnings in the field and to alternative earnings opportunities.[24]

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[19] The case for increased production of Ph.D.s, especially minority Ph.D.s, rests not just on the need to improve representation of minorities on college campus, but also to stem a forecast of faculty shortage predicted by such prominent educational leaders as William Bowen, former president of Princeton University and head of the Mellon Foundation and Neil L. Rudenstine, President of Harvard University. In Pursuit of The Ph.D., Princeton University Press, Princeton, New Jersey, 1992.

[20] Excellent reviews of this literature include: Breneman and Youn (1988) and Ehrenberg (1991).

[21] For example, the view of preparation as an "extended pledgeship at subsistence levels of income.... and problematic prospects of attaining tenure." Bowen & Schuster, New York (1986), P.154.

[22] See, "Road Blocks to graduate School: Black Americans are Not Achieving Parity," William F. Brazziel, Educational Record, Fall 1987-Winter 1988, citing high costs of graduate study and low faculty pay as causes for low black faculty production.

[23] One important deterrent is the length of time that it takes to obtain the degree. See, "A Stock Flow Model of Academic Supply," Ronald G. Ehrenberg, Economic Challenges in Higher Education(1991) p. 159. Among African Americans, moreover, who often take longer than average to complete the Ph.D., there is evidence of considerable dissatisfaction with the graduate school experience. See, "The McKnight Black Doctoral Fellowship Program: An Evaluative Study," S. David Stamps and Israel Tribble, 1993, finding overall levels of dissatisfaction comparable between students with financial aid and those without.

But even if the production of Ph.D.s can be improved, there still remains the problem of large numbers of Ph.D.s choosing to enter professions other than higher education. Bowen and Schuster note a sharp drop in the percentage of Ph.D.s who pursue careers in higher education. For example, the table below shows a sharp decline in the percent of science and engineering Ph.D.s employed in higher education from the 1960s to the early 1980s.

Table 1: Percentage of Ph.D. Recipients Employed in Academic Positions

Years:	**1960-64**	**1977-80**
Sciences	54%	34%
Social Sciences	71%	54%

Bowen & Schuster (1986) p. 180.

Any model designed to capture the factors contributing to the underrepresentation of minority faculty in higher education must account for two factors: 1) the production of Ph.D.s and 2) the attractiveness of other nonacademic employment prospects.

Figure 7 sketches one such model. In this model, preferences and opportunities -- which themselves are determined by such things as financial aid for graduate study, family obligations, alternative earnings opportunities, and a host of other demographic variables -- influence the completion of the doctorate. Career aspirations as well as personal constraints combine to determine whether new Ph.D.s decide to enter the academic market or whether they will seek public sector or private sector employment. The attractiveness of alternative opportunities are influenced by expected earnings in those non-academic sectors.

Thus, in addition to demographic factors affecting preferences and opportunities, or choices and constraints, the three factors that most directly affect the faculty employment outcome in this simple model are: 1) the receipt of the Ph.D.; 2) faculty wages; and 3) wages in the private sector.

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[24] He finds elasticities in the range of .82 to 3.00 for earnings in the same field; and -1.04 to -2.8 for earnings in other fields. Ehrenberg (1991). Studies cited by Ehrenberg supporting these findings include: Freeman (1971), Freeman (1975), Scott (1979), Kuh & Radner (1980), Hoffman and Low (1983), Alexander and Fry (1984), Hoffman and Orazan, (1985), Baker (1989), and Stapleton (1989).

The model simplifies matters considerably in order to estimate a straightforward relationship between Ph.D. production, other factors, and faculty employment. For example, it ignores demand-side factors that directly influence faculty-hiring decisions. These factors include student enrollments and institutional fiscal constraints. It also ignores the wide range of alternative routes to faculty positions, although this issue should be revisited in discussions of possible collaborative relationships between industry and universities or between the public sector and universities[25]

The above model can be useful in assessing the effectiveness of programs designed to increase minority Ph.D.s and their impacts on minority faculty representation. By separately estimating the impacts of Ph.D. production on faculty employment for majority and minority groups, we can estimate the effects of this policy on majority and minority representation ratios.

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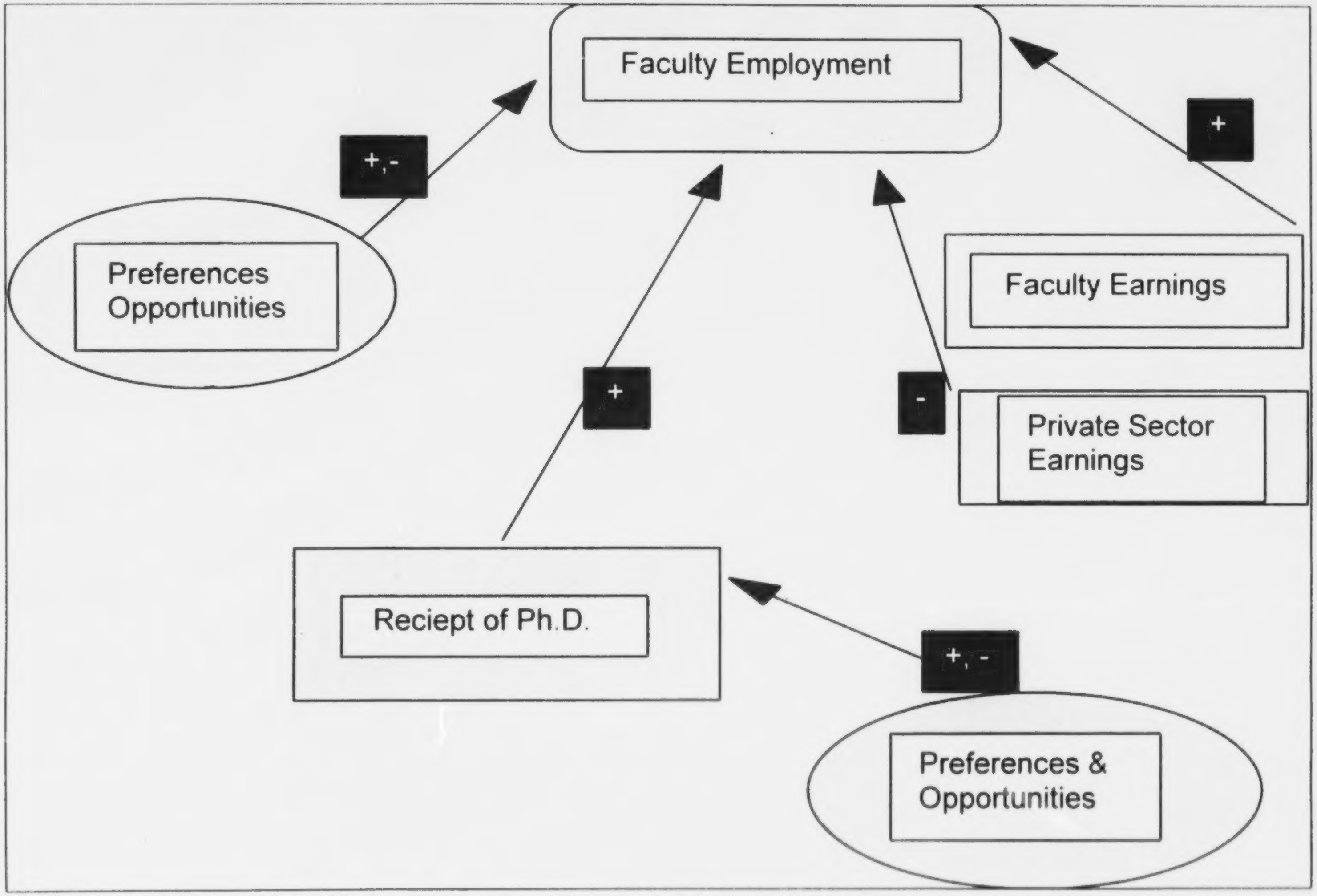
[25] We have also not included public sector earnings in the model. This is due to empirical convenience. We found that public sector wages were highly correlated with private sector wages. Inclusion of both in our regression model--along with faculty wages--introduced substantial multicollinearity.

Figure 7: Model of Faculty Supply


Faculty Employment
+,-
Preferences
Opportunities
+
Faculty Earnings
+
-
Private Sector
Earnings
Reciept of Ph.D.
+, -
Preferences &
Opportunities

The logic is as follows: suppose that a policy -- such as increased financial assistance for graduate study -- increases both minority and nonminority receipt of doctoral degrees, and further, that the percentage increase in minority and nonminority Ph.D.s is uniform. Thus, a policy to provide extra financial aid to African American graduate students would in fact increase the number of Ph.D.s conferred upon this group by the same increment as extra financial aid would increase Ph.D. conferrals on the Caucasian group. This is precisely the sort of policy that has been advocated by economists like Ronald Ehrenberg who contends that the borrowing patterns of African American graduate students actually put a brake on both their pursuit and the completion of the Ph.D.[26]

The question posed in this investigation is: "Suppose there is a uniform percentage increase in the receipt of Ph.D.s by minority and nonminority persons in the same qualifications group. What would happen to the minority faculty representation ratios?"

The answer depends, of course, on whether existing hiring patterns in academia versus other sectors result in larger, smaller, or equal increases in minority faculty employment as compared to nonminority faculty employment. Generally speaking, in order for uniform increases in Ph.D.s to increase minority faculty representation, minority faculty employment has to increase at a greater rate than that of nonminority faculty employment.[27]

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[26] Ehrenberg (1991), p. 228. "Black dependent students from each family income class are much *less* likely to have taken out college loans than students from other race/ethnic groups......Black independent students in each income class are also less likely to have loans......However, the loan burdens that these black students acquire are a much larger share of their income (.637) that are the loan burdens of any other group."

[27] Let R^k denote the representation ratio for the kth group, where:

$$R^k = \frac{P^k(fac)}{P(fac)}, where \ P(fac) = \frac{1}{1 + \exp{-(\sum \beta_i x_i)}}$$

The slope of the faculty probability, P(Fac), with respect to a factor x_i (such as the receipt of the Ph.D.), is given by $\beta_i P (1-P)$. The elasticity of P(Fac) with respect to x_i is given by $\beta_i (1-P)x_i$. To compute the effect of x_i on R^k, we derive: $\partial R^k/\partial x_i$ and $\partial R^k/\partial x_i \cdot x_i/R^k$. But note that $\partial R^k/\partial x_i = [\partial P^k/\partial x_i P - \partial P/\partial x_i P^k]/P^2$, which may be negative even when $\partial P/\partial x_i < \partial P^k/\partial x_i$ when $P^k > P$, as is the case with Asian Americans.

To address this issue, two different comparisons were considered. The first compares faculty share to population share.[28] The second is a comparison of faculty share to share of the subpopulation of employed persons with master's or doctorate degrees.

In the first comparison, the following independent variables were included: age, marital status, gender, presence of children or elderly adults, immigration status, and receipt of the Ph.D. A model of the probability of faculty employment was estimated. The impacts of an increase in the production of Ph.D.s on the faculty representation ratios for whites, African Americans, American Indians, Asians and Hispanics were then computed. The data set was partitioned to isolate the subset of cases from MHEC states and the equations were estimated again, to derive the impacts of Ph.D. production on faculty representation ratios.

Figure 8 shows the responsiveness of faculty representation to changes in Ph.D. production. It shows what would happen to both the national and MHEC states' representation of African Americans, Asians and Hispanics if there were a one percent increase in each of these groups' Ph.D. production.[29] The responsiveness of faculty supply both at the national level and among MHEC states is negligible. A one percent increase in the production of Ph.D.s would only marginally increase the representation of African Americans, American Indians and Hispanics in higher education employment. While there would be a slight reduction in the representation ratios of Asian Americans, even that change would be quite small.

Of course, the above comparison is between faculty and the general population. One could argue that a better comparison would be between faculty and those who are in the potential pool of qualified faculty, such as those with master's and doctoral degrees. About five percent of all persons with a master's or Ph.D. degree are employed as faculty members in colleges or universities. What would happen to faculty employment if there were a one percent increase in the numbers of persons in that pool who had Ph.D.s? And, how would the Ph.D. impact compare with the impact of earnings differentials between the private sector and academia?

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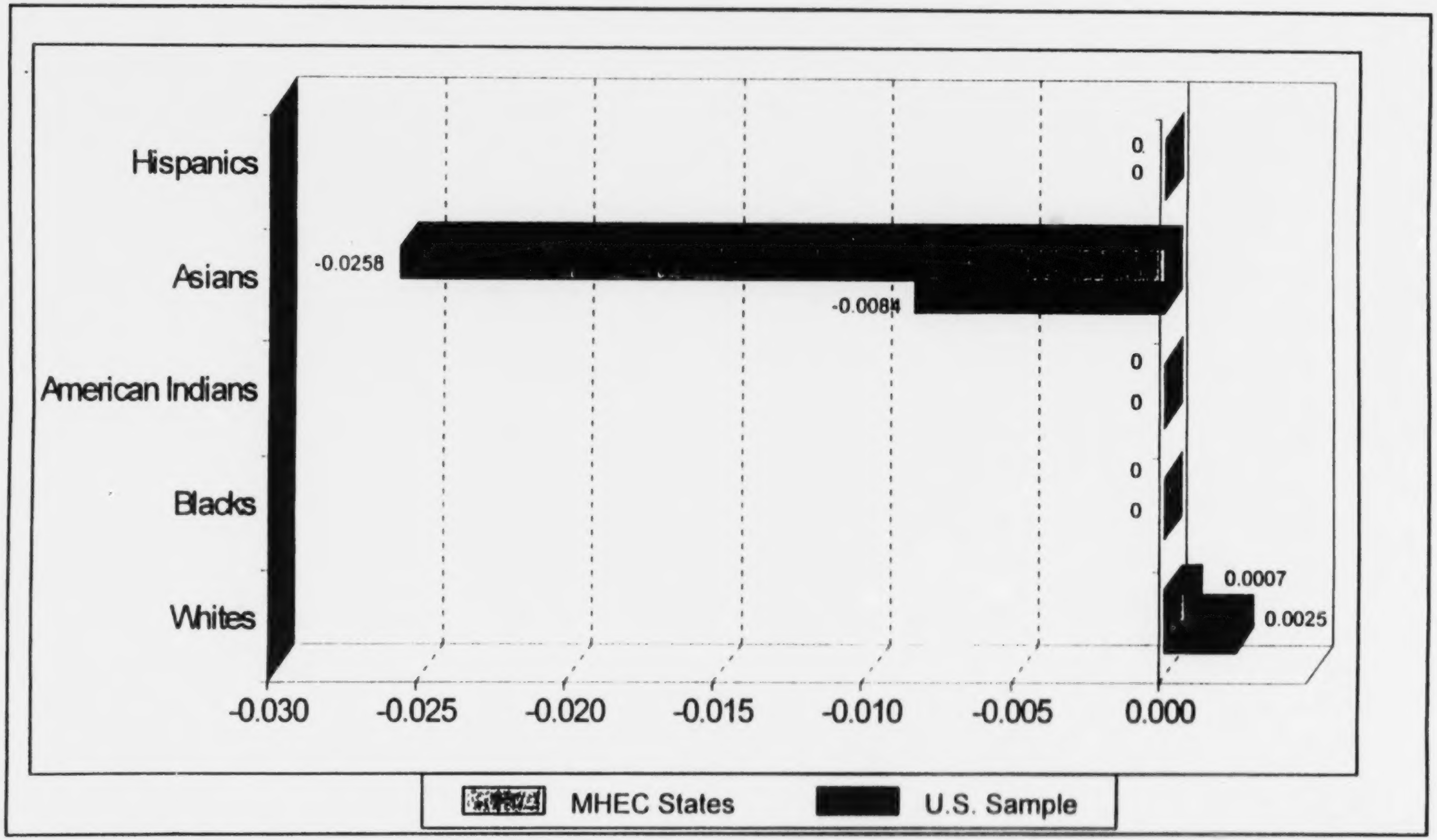
[28] Note that this comparison of the share of faculty to the share of the population is the same as the comparison of $P^k(\text{Fac})$ to $P(\text{Fac})$, where $P^k(\text{Fac}) = \#\text{Fac}^k/\#\text{Pop}^k$ and $P(\text{Fac}) = \#\text{Fac}/\#\text{Pop}$, or the ratios of faculty to populations. That is, $P^k(\text{Fac})/P(\text{Fac}) = (\#\text{Fac}^k/\#\text{Pop}^k)/(\#\text{Fac}/\#\text{Pop}) = (\#\text{Fac}^k/\#\text{Fac})/(\#\text{Pop}^k/\#\text{Pop})$.

[29] American Indian calculations, based on a limited number of observations, are not displayed here. The full results are found in Tables D.17-D.24 of the Appendix.

Figure 8: Elasticities of Representation Ratios With Respect to Ph.D Production



The elasticities of representation ratios with respect to Ph.Ds is the percent change in the representation ratio as a result of a 1% change in Ph.Ds.

Source: Appendix D Table D.24 (3% of 5% PUMS U.S. Sample. Population ages 24-70).

Figure 9 reveals, once again, that representation ratios are not particularly responsive to Ph.D. production. That figure shows that a one percent increase in Ph.D.s obtained by minorities would have only small effects on their representation ratios, and in some cases negative effects.[30]

2. Low faculty salaries have a greater effect than the quantity of minority Ph.D.s on the supply of minority faculty members in MHEC states.

What about the impacts of market incentives, such as faculty wages compared to earnings in private sector jobs? As a first step in assessing these impacts, log-wage equations for wage and salary incomes reported by employed professionals in 1989 were estimated. Medical professionals and lawyers, whose salaries are considerably higher than typical M.A. and Ph.D. recipients were excluded from the computations. The sample was partitioned into four industry-occupation classifications: faculty employed in higher education; professionals employed in non-private sector jobs; professionals employed in public sector jobs; and all others. Wage equations within each sector were estimated, controlling for hours worked, age, gender, and a number of other factors. The coefficients from these equations were used to predict "expected earnings" for persons in the entire sample of professional employees.

In effect, computations were being made of what a person could expect to earn had they been employed in each one of the sectors. Not surprisingly, the results showed higher wages in private sector employment and lower wages in higher education employment. In addition, the earnings of racial minorities tended to be lower than those of whites.

Figure 9 shows two important points:

- The negative effect of low academic salaries is stronger than the attraction of high private-sector salaries.
- The supply of faculty is very responsive to earnings potential in academia. This responsiveness is much more pronounced among nonwhites as a group than it is among whites, especially in MHEC states.

Generally speaking, minority faculty representation increases as expected faculty salaries increase, and declines as private sector salaries increase. But the increases in representation resulting from increased faculty incomes are greater than the reductions in representation linked to increased private sector wage and salary incomes. The negative effect of low academic salaries is stronger than the attraction of high private-sector salaries. In other words, one cannot conclude that all of the blame for the low minority faculty representation can be placed on the high salaries in industry; part of the blame must rest on the comparatively unattractive salaries in academia. If faculty salaries were to rise, the corresponding increase in minority faculty employment would be larger than if private sector salaries were to fall.

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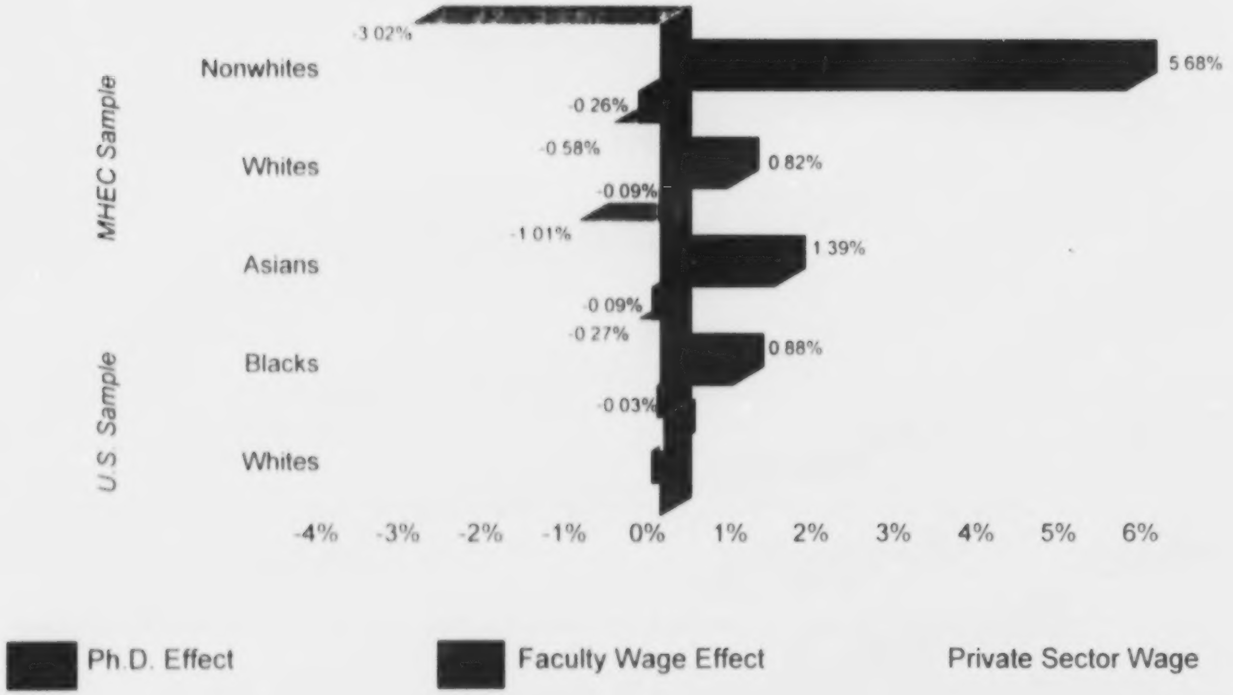
[30] The reason for the negative effects on African Americans is that the slopes of faculty employment with respect to increased Ph.D. recipiency are smaller than average. This means that just simply increasing the numbers of blacks who have Ph.D.s will not assure that they will become employed or will want to become employed as faculty members at the same rate as whites or Asians who have considerably higher rates of employment as faculty. Full details are given in Tables D.18-D.24 of the Appendix D.

The full details of these computations are presented in a technical appendix. Suffice it to say that the main effects of Ph.D. production on minority faculty supply are substantially diminished by market incentives in the private sector. Certainly, some persons decide to pursue academic careers regardless of earning potential; conversely, there is every reason to believe that some persons choose not to work in the college or university setting no matter what the salary. But these findings suggest that overall, the supply of faculty is very responsive to earnings potential in academia. This responsiveness is much more pronounced among nonwhites as a group than it is among whites, especially in MHEC states. As a result, the market effects of increased faculty salaries would be to improve the representation of heretofore underrepresented minorities in higher education.

Figure 9: Elasticities of Representation Ratios with Respect to PhDs, Faculty, and Private Sector Wage



Elasticity of representation ratio (R) with respect to variable x is defined as the percent change in R as a result of a 1% change in X.
Source: Table D.20 and D.21

TABLE 2 ANNUAL WAGE AND SALARY INCOME FOR MASTER'S AND PH.D.S POPULATION (24-70), 1990

	U.S.	MHEC STATES	N.EAST REGION	NORTH CENTRAL	WEST REGION	SOUTH REGION
Percent Faculty	5.88%	6.53%	5.26%	6.48%	5.34%	6.58%
White	6.15%	6.79%	5.58%	6.66%	5.60%	6.88%
Black	4.23%	3.50%	3.09%	3.79%	4.51%	4.71%
Indian	5.10%	----	----	----	----	----
Asian	4.87%	4.73%	3.46%	5.77%	4.55%	7.44%
Hispanic	4.08%	8.61%	3.20%	11.01%	4.11%	2.67%
Private Sector Wage	$34,556	$33,993	$37,926	$33,649	$36,201	$30,563
White	$35,028	$34,444	$38,107	$34,115	$36,753	$31,196
Black	$28,807	$27,446	$33,507	$27,168	$31,711	$26,270
Indian	$35,534	----	----	----	----	----
Asian	$35,275	$33,852	$40,760	$33,238	$34,053	$32,104
Hispanic	$32,422	$29,587	$33,601	$30,336	$35,492	$26,510
Public Sector Wage	$30,718	$30,692	$31,549	$30,520	$32,049	$28,699
White	$31,274	$31,113	$32,026	$30,985	$32,804	$29,196
Black	$27,889	$27,370	$28,820	$27,227	$29,771	$26,941
Indian	$31,546	----	----	----	----	----
Asian	$27,349	$26,797	$28,752	$25,935	$27,559	$25,594
Hispanic	$28,495	$28,196	$28,381	$28,100	$30,722	$24,640
Faculty wage	$26,596	$26,219	$27,499	$25,991	$26,874	$25,939
White	$26,732	$26,307	$27,320	$26,111	$27,167	$26,193
Black	$23,998	$23,347	$25,654	$23,059	$24,298	$23,541
Indian	$26,542	----	----	----	----	----
Asian	$27,829	$27,920	$31,415	$26,954	$25,913	$28,993
Hispanic	$25,966	$25,623	$26,907	$26,301	$26,599	$23,970

Percent Faculty is: percent of faculty divided by the population of masters and PhDs.
Source: 1% Public Use Micro Sample, 1990. Master's and PhD only.

3. Salaries of minority and majority faculty members are generally lower than the national average in MHEC states.

Faculty wage and salary earnings equations were computed for each region of the United States using the 1990 PUMS data. These estimates reveal that among 24 to 70 year olds with earned master's degrees or doctorates, the average private sector wage in the U.S. is $34,556. The average private sector wage in northeast states is $37,926. In the western states it is $36,201. Among the MHEC member states, the average private sector wage is $33,933, lower than the east and west but still higher than the south and the northcentral states as a whole, where the salaries are $30,563 and $33,649. These computations are shown in Table 2.

Faculty wages are slightly lower than the national average in the MHEC member states, but there is far less variation in these wages from region to region than is the case for private sector wages.

Black faculty wages, however, are lower in the midwest generally and in the MHEC states specifically than they are in the south, the west or the east. Whereas black faculty with master's degrees or doctorates can expect to earn $25,654 in the east, $24,298 in the west, and $23,541 in the south, they can only expect $23,347 in the MHEC states. Hispanics also earn slightly less in the MHEC as compared to the rest of the nation. Asian faculty salaries, moreover, in the east and south exceed those found in MHEC states.[31]

4. MHEC states are exporters of Ph.D.s generally and -- to an even greater extent -- of minority Ph.D.s.

The member states of the MHEC collectively confer approximately 23 percent of all Ph.D.s in the nation.[32] The vast majority of these doctoral recipients ultimately pursue careers in other regions of the nation.

According to Table 3, 36 percent of the Ph.D. graduates produced by Midwestern institutions remained in the Midwest in 1991. The other 64 percent were employed outside the region. Of the Ph.D.s employed in MHEC states, 51.5 percent were from outside the region. Thus, the MHEC states are net exporters of Ph.D. talent. One-half of the doctoral recipients employed in MHEC states were "imported" from other places, but almost two-thirds of the doctoral graduates produced in the Midwest were "exported" to other places.

The Midwest region is also a net exporter of minority doctorates. For example, of the 874 Native American Ph.D. conferrals nationally in 1990, 170 received doctorates from Midwestern institutions. Of that number, 106 were employed outside the region.

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[31] There were too few cases to estimate earnings equations for American Indians by region.

[32] National Research Council, special tabulations from the Survey of Doctorate Recipients, 1991.

Coincidentally, there were also 106 Native American doctorates employed in the Midwestern states in 1990. Of this latter number, 40 received their doctorates from institutions outside the Midwest. Thus, there were more Native Americans who received their Ph.D. from Midwestern institutions, but who left the region, than there were Native Americans who received their Ph.D. elsewhere and were employed in the Midwest.

And although nearly 54 percent of African American doctorates employed in the Midwest received their degrees in the region, fewer than half of the African American faculty of Midwestern institutions received their degrees from Midwestern institutions. Approximately 37 percent of the African American doctorates produced in the region, stay in the region, but only 33 percent hold faculty positions. In other words, there is a drop-off in the share of African American doctorates produced and employed in the region who ultimately become employed as faculty in the region. This drop-off is apparent among African Americans but not Asian/Pacific Islanders or American Indians, two groups for which the Midwest share of the national pool of Ph.D. faculty is larger than average.[33]

Table 3 reveals another phenomenon: the share of doctorates produced by Midwestern institutions not working in Midwestern states was greater than the share of externally produced doctorates employed in the Midwest.[34] This pattern is evident among all minority groups as well as whites.

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[33] The MHEC share of production of Hispanics is smaller than average. The MHEC members states produce on average 23.6 percent of all Ph.D.s employed in academia. But MHEC states produce only 13.5 percent of all Hispanic Ph.D.s employed in academia. Accordingly, the share of MHEC-employed Ph.D.s produced by MHEC states is smaller for Hispanics than for other groups and the share of MHEC-produced Ph.D.s who work in MHEC states is smaller for Hispanics than for other groups.

[34] The net export position is less apparent in the case of Hispanics, particularly those in academia. Thirty-five percent of Hispanics who were employed as faculty in MHEC states received their degrees from MHEC states. In contrast, 33 percent of MHEC-produced Hispanic Ph.D.s worked in MHEC institutions. The raw count of the survey respondents who worked in MHEC states but received their degrees elsewhere is 600 and who received their degrees in MHEC but worked elsewhere is 950.

TABLE 3

Share of Employed Ph.D.s Produced by MHEC States

	Total	White	Black	Asian	Native American	Hispanic
Share Produced by MHEC States						
All Ph.D.s	22.79%	22.93%	22.51%	23.48%	19.45%	14.01%
Science & Engineering	22.50%	22.51%	21.47%	23.69%	20.48%	15.57%
Ph.D.s Employed in Acadamia	23.63%	23.81%	22.48%	24.61%	26.88%	13.52%
Science & Engineering	23.43%	23.44%	22.05%	24.94%	28.83%	15.58%
Share of MHEC Employed Ph.D.s Produced by MHEC States						
All Ph.D.s	48.50%	48.57%	53.45%	46.73%	60.38%	41.60%
Science & Engineering	48.15%	48.02%	53.53%	47.59%	65.75%	44.00%
Ph.D.s Employed in Acadamia	46.25%	46.34%	49.32%	45.12%	66.20%	35.02%
Science & Engineering	45.64%	45.41%	48.67%	46.88%	81.58%	38.22%
Share of MHEC Produced Ph.D.'s Who Work In MHEC States						
All Ph.D.s	36.47%	36.94%	36.77%	32.23%	37.65%	33.43%
Science & Engineering	36.14%	36.57%	38.47%	32.45%	31.37%	33.25%
Ph.D.s Employed in Acadamia	38.26%	38.76%	32.90%	35.50%	36.43%	33.46%
Science & Engineering	37.88%	38.34%	32.91%	36.05%	27.43%	33.98%
Share of MHEC Produced Ph.D.'s Employed Outside of MHEC States						
All Ph.D.s	63.53%	63.06%	63.23%	67.77%	62.35%	66.57%
Science & Engineering	63.83%	63.43%	61.53%	67.55%	68.63%	66.75%
Ph.D.s Employed in Acadamia	61.74%	61.24%	67.10%	64.50%	63.57%	66.54%
Science & Engineering	62.12%	61.66%	67.09%	63.95%	72.57%	66.02%

Source: Author's computations from Appendix F, derived from National Research Council, Survey of Doctorate Recipients 1991, unpublished tabulations.

Chilly Climate and Other Minority Faculty Concerns

1. A majority of the minority faculty members interviewed for this study consistently revealed perceptions of a "chilly climate" on many MHEC campuses.

The key concerns expressed in interviews with 55 minority faculty members and by nine minority faculty participating in two focus groups are the following:

- Racial, gender and ethnic bias;
- Isolation and unsupportive work environment;
- Lack of information about tenure and promotion;
- Language/accent barriers;
- Lack of mentors and lack of support from superiors

Racial/ethnic bias was the most frequently mentioned concern in the interviews.

One informant said that she didn't get a promotion because she did not fit "the profile":

> *"First there were no women's names floating around. But here I was a woman and an Asian American and I felt that if I were a white male, my name would have been out there."*

Another mentioned perceived hurt from discrimination:

> *"That whole year I had more publications, more presentations, and community work than any of the faculty that I supervise...We found out who was promoted through the student newspaper, and I looked and I wasn't promoted. In the student newspaper of all things. No one had the decency to call..."*

And there were numerous other personal experiences that underscored the problem of racial and/or ethnic bias:

> *"And I've heard some anecdotal things with one of my friends that was told very straight-in-the-face, you might say...He was going for a provost position and the president of that place said, well you know, you should try this other place. There's more Asians there..."*
>
> *"I was denied on the fact that I wasn't here long enough. And one of the faculty had been here one year less than I had. They were granted promotion...So the next year I applied for promotion again and was denied."*
>
> *"I don't know if I ever really have grieved over not getting [tenure]...I don't think I really sat down and let myself be really mad."*

Related to the feeling of racial bias was the perception that minority faculty members must work harder than whites, that they must be twice as good just to be equal. Being in the "spotlight," these minority faculty members felt as though they were under almost constant scrutiny. They felt that they must always be at their best and constantly exceed what whites do in comparable situations. The participants felt that to achieve within the normal realms of expectation might be construed as somehow lacking the necessary drive to become a successful faculty member:

> *"The competence of minority faculty is more apt to be questioned and challenged. It makes it more difficult."*

> *"Rightly or wrongly, many of my nonminority colleagues...are never 100 percent sure that a minority person is here because they are good at what they do or because of affirmative action."*

Sentiments were expressed about how the minority faculty person kicks into high gear, especially when in pursuit of tenure. This means that even when the burden becomes nearly unbearable one must press on in order not to be judged unfavorably. Take, for instance, these comments by one faculty member:

> *"I do not want to jeopardize my tenure. I would like to spend less time in teaching and more in research. I would prefer something more balanced in teaching and research. They are expecting too much in terms of teaching."*

This same informant went on to say that she always felt that she was expected to represent her whole ethnic group and that this was not something expected of white faculty members. Further, she remarked that she is expected to teach and do research on top of all these extraneous expectations.

Being very conspicuous is an added burden indicated by the interviewees. This situation creates a great deal of discomfort for minority faculty because they feel diminished in their professional capacities. They want to be recognized first for their academic credentials:

> *" ... I'm just the department chair in the *** department and I meet with a lot of people who don't know me -- you know, prospective students and their parents. And I know that their first reaction to me is that I'm an Asian American woman, not that I'm a scientist or that I'm competent..."*

Another remarked:

> *"It's like you get this look and all of a sudden you think to yourself, That's right, I'm black. That's right, I'm a person of color. And so, they're not seeing me the way I see myself. They see that [color] first and then get their little shock..."*

The participants indicated that they do not want to be seen as showpieces or as tokens for whom standards were lowered in order to hire them:

> *"It's just like when they trot me out for the minority students and then they trot me back in. It's the same notion, they trot me out when they need attention .... and then they trot me back in when they no longer need me."*

> *"...it was clear to me that in many of the searches, being an Asian did not help and that in some of the cases, I felt that I was put in there just to make the slate look like it was well-rounded and there was no particular intention of choosing the person."*

> *"I think that one of the challenges is to prove that you don't have your job because you were an affirmative action hire, that you're not a token."*

> *"...one person really got mad at me...He was resentful that I was hired...he thought it was solely on my race."*

> *"You know, students sometimes ask, well do you think you got your job because of affirmative action?"*

> *"You feel like a token. I always feel like that. The token Indian."*

Many respondents also believed that research on minority issues was not valued:

> *"But the chair said, get rid of this Indian stuff, when he looked at my vita...and I looked at him [and said] I'll do anything else that you want me to do...but I cannot give that up..."*

Many said they were expected to handle minority affairs:

> *"Issues of pedagogy and cultural diversity and gender are not the province of just women or just faculty of color. I think that happens too often and that puts the faculty of color person or woman on the spot, to kind of convince or persuade -- be this change agent...The faculty members feel the added pressure, but are caught in a Catch- 22' because minority issues are also important to them."*

> *"It's time consuming...almost every committee wants you to be on it. It gives you opportunities at the same time."*

> *"...and every time a new black student comes over to the college, [and colleagues say] Why don't you go talk to them?'...I don't mind doing [it], but it's the extra expectation.... "*

> *"...it was frustrating, too, because anything that had to do with diversity, people dumped it on my lap...and that's just too much work for one person, and diversity should be*

> *everybody's job."*

Being one of only a few minority faculty members, or the only one on a campus presents problems, according to the respondents. Although most of those interviewed adapted to this situation, some of them said that it presents special problems:

> *"...I've gotten tired of going to faculty meetings and being the only African American there."*

This situation poses another problem in that it dilutes the necessary message to minority students whose numbers are on the rise in some institutions:

> *"We need to have a lot of representation. The faculty numbers ought to increase because of the reason of channeling students through them as mentees...We have not increased proportionately with the student increase."*

One informant said that the small numbers of minority faculty at many institutions perpetuates the notion that minorities cannot achieve as highly as whites in academia:

> *"...And I think that the paucity of black professors and administrators in these kinds of settings reinforces the presumption people have that we're out of place and it leads to all kinds of ironic, comical and downright restrictions on life chances for blacks and other minorities in these kinds of settings."*

Race-based bias was a matter of concern to all of the minority groups interviewed in this study. At the same time a number of issues that surfaced were of special concern to specific groups.

American Indians:

One of the major concerns of American Indians was **identity**. It is often tedious for them to maintain ties to their own Indian community while at the same time being part of an often incompatible academic community.

> *"I think that American Indian people particularly have the problem of identity to deal with. All American Indian people have it, whether they're traditional, whether they're full-blood, whether they're mixed blood, whatever their background. Identity is a very complicated factor in their personal and their professional life."*

> *"The role of the university is not to make you comfortable as an Indian; the role is to strip the Indian away from you . . ."*

> *"I would say that over the years, the biggest challenge that I've had to face as an Indian faculty member is that I've had to make sure that I don't act in such a way that the*

> *Indians in the community feel that I'm trying to 'put on the dog,' or feel that I'm better than they are...I have to remind myself of that periodically. As long as you do, you can steer clear of the pitfalls of that."*

Some faculty members suggested differences within the American Indian community of scholars regarding academe and Indian identity:

> *"I've done my best to make this system more accessible. I don't think that it robs us of our culture. It does lead us away from our past, but education does that for all people and the real challenge to Native Americans today is to live in [an] evolving culture and contribute to its evolution, rather than struggle to maintain its history."*

> *"[I]t's what you want...I would never go any place where there aren't American Indian students. That's one thing I would not do. I learned my lesson when I went to ***. But some American Indians just simply want to do research and want to write that book and it doesn't really matter where they are. They could teach at Harvard, that's fine. Personally, I would not want to teach at Harvard because of the simple reason there aren't any Indians there."*

Asians:

Three issues were especially important to Asians: **glass ceiling, language**, and **absorbing the difficulties in silence.**

A number of Asian faculty members expressed concern for what might be termed a "glass ceiling" beyond which they were not able to pass. A second concern revolved around language. It was not that they necessarily felt that they had a problem with the language. Rather, the concern was that others often perceived them as not being able to adequately speak or fully comprehend English. Working hard while absorbing the difficulties in silence appeared to be an additional burden.

> *"First there were no women's names floating around, but here I was a woman and an Asian American, and I felt that if I were a white male, my name would have been out there."*

> *"And I've heard some anecdotal things with one of my fiends that was told very straight-in-the-face, you might say...He was going for a provost position and the president of that place said, well you know, you should try this other place. There's more Asians there..."*

> *"People ask me, Why do I speak English so well?...[T]hey've already superimposed on me that I don't belong here."*

> *"Nonverbal skills are fine, but we don't expect any Asian to have any verbal skills or*

> *being able to write memos that command the respect of the faculty."*
>
> *"I guess essentially I work hard. So I guess I try to -- at least let me put it this way -- I prevent something from happening...So, I don't make waves. I wouldn't even dare to do this kind of thing...What are you going to do, you know?"*
>
> *"...when minority people are more vocal, then there are less chances [opportunities]. So, over the years I've kept myself blind and didn't scream about it, and so things have gone on...what keeps me here at the present position is maybe my ego...I don't leave a place considering it a defeat. I always feel I leave a place only after I have succeeded in my efforts...I've always told people, 'Never quit!'...prove to yourself that you have won, and then you can say 'Bye.'"*

Hispanics:

Two issues that prompted a number of comments from Hispanics were **cultural isolation** and **overwork.**

Cultural isolation:

> *"...This is something that has been a struggle since I came to this country from Puerto Rico...there was a lot of prejudice...people at first...start laughing at your accent...It's just the stereotypes that's always been in the U.S.A. They put all of the Hispanics in the same spot. 'None of you work,' or 'All of you are on welfare and you're not going to get off of welfare.'...We need more Hispanics...Our students...don't have an image of Hispanic faculty, administrators..."*
>
> *"One situation that is particularly challenging for me is the language. You are hesitant to participate. Some colleagues become impatient with you...Sometimes I just keep quiet...lack of a [perfect] command of English can be seen as if you were not good enough in your field...They don't have any Latinos here. You feel isolated in terms of your culture. You don't have the other people that listen to your music, eat your food..."*
>
> *"Dilemma -- the expectations that I know everything, expertise in everything that happens -- race relations is one..."*
>
> *"There is a lot of service -- committees where I'm representing the whole institution at various things...not just within the department but university-wide committees...This year service seems to be eating away my time. At every level, they don't realize that each is asking for a lot...It is hard to say no, especially on minority issues, when there are so few people...I realize how few people are available [to address these issues]...I sit on 53 doctoral committees. Doctoral students take a lot of time for the dissertation process. I turned down being chair of one doctoral student's committee and she*

nearly cried. She was a good student studying multicultural issues, but I can't chair these committees. I'll wind up spending all my time correcting dissertations and not doing my own writing."

"A good friend said to me that when you're a minority, you're going to have to be better than everybody else and, whatever you do, you have to take great care, you're going to have to be sure that you're very meticulous, that you do your best, that there are no questions about anything that you do..."

African Americans:

The most frequently mentioned concern of African Americans was **being visible and invisible**. The participants expressed frustration because they feel that they are very visible because of their color and their advocacy of diversity, while at the same time they are overlooked because they didn't fit others' view of the "norm."

Visibility:

"Coming on campus, it was perceived that you got the job because you're a minority...You're not perceived of having something to offer. It's like -- you've had a good day if you do something well, you're not quite as good at things, not as deserving of some of the rewards."

"I wonder, when I go into those kinds of meetings, when candidates are coming in, if my fellow colleagues look at me in terms of their equals or is this just another project -- a minority development project -- and so it's to get numbers, it's to get minorities..."

"One of the things I've gotten tired of is going to faculty meetings and being the only African American there...I was saying that we needed to bring in more African Americans but no one really was taking it seriously...It is extremely difficult to work in that environment...I am looking to leave...if they don't bring on another African American."

Invisibility

"I don't feel like a part of the department. I have been alienated from my department for a number of years...It is not an environment that's nurturing for me."

"The college was very chilly. There's the typical thing that happens when people don't feel you came through the ranks. They thought that it was a top-down move to get me in this campus...A lot of faculty didn't feel like they had voted for me. So, the first year was hands-off. There were a lot of people who just didn't know what to make of me...So, I got jerked around a lot, swept aside and I wasn't bitter about it."

"A lot of times, when I expressed dissatisfaction at the hiring rate -- that, I think,

> *appalling hiring level of people of color, the conditions and the atmosphere for minorities at the school -- people look at me with a puzzled look and say, 'Well, I thought you were happy. We didn't know you felt like that.' So it's almost as if they've been looking at me as an honorary white person, or honorary European, if you will. And all the while I thought I was expressing me as a unique African American individual there."*

In summary, a majority of the interview participants uniformly felt the University environment is unwelcoming to minorities. The talents and aspirations of people of color are not always fully valued. The climate is perceived as "chilly" to all but a few who are able to adapt to the white-male dominated ethos of academe.

These interviews do not prove that the perceived chilly climate *causes* underrepresentation of minority faculty. But they do offer convincing testimony of the pervasiveness of the problem.

2. Despite concerns about a chilly climate for minority faculty members, most of those interviewed indicated they plan to stay in academia.

The following comments reflect the commitment of most of those interviewed to their academic careers, despite what is often perceived as lack of support in a "chilly climate."

> *"I enjoy teaching -- the contact with the students and especially when you make a difference in their lives...It's a good place to work...It's low-key, it's not a high pressure situation and there's opportunity to advance and do pretty much what you want to do."*

> *"I plan to stay in academia. I plan to stay probably in community colleges. I'm far enough along in my career in salary and in age that I don't see making any radical moves...It's the ideas. That's primarily the thing that keeps me going. It's an academic setting, because it is surrounding you with research and ideas."*

> *"I always wanted to teach. Always. I didn't know it was going to be science, but early on, I knew I wanted to teach."*

> *"Why am I doing this? I guess, I like it. I guess I love it. I guess I'm a lunatic. I'm certainly not going to make any money being a [humanities] teacher, you know, but I enjoy it. I enjoy running my mouth and pontificating to my students and telling them that they can do it."*

> *"I feel that I'm very fortunate, because I'm relatively unique, and so would any American Indian be in this particular field in academia...That's why the struggle in the long run will be well worth it. I think most faculty will be able to achieve whatever they wish."*

Turnover

A commonly held belief among educators is that increased minority faculty representation in higher education is impeded by high minority turnover in the academic ranks. The two premises for this view are that many junior minority faculty fail to obtain tenure and/or many talented minority faculty are lured away by other institutions or industry. The explanation is that successful efforts to recruit additional minority faculty are thwarted by excessive minority turnover in academe. For example, a recent report on minority faculty retention and recruitment cites statistics at the University of Maryland indicating that of the 14 African American faculty who were hired between 1982 and 1985, only one remains and that only nine percent (one of 11) African American assistant professors hired during the period were promoted to associate professor with tenure.[35] This problem is termed the "revolving door" effect by the authors of the University of Maryland report.

Similar findings are cited in a report at the University of Minnesota where a comprehensive effort was begun in 1988 to increase minority faculty representation. After five years, many new minority faculty were hired, but almost as many left.

The University of Wisconsin also reported the "revolving door phenomenon." Each year, the U-W system hired impressive numbers of minority faculty. But large numbers of minority faculty also left during those same years. About half as many minority faculty left the University system as were hired.[36]

As discussed earlier in the report, further research is needed to determine if turnover affects the representation of minority faculty in MHEC states.

Institutional Support

1. MHEC institutions reported few organized programs for supporting minority faculty development.

Appendix C reports the findings of the survey returned by 487 higher education institutions in MHEC states. It shows that despite the fact that 77 percent of the 487 institutions surveyed reported minority faculty retention as a high or very high priority, most offer little organized support for minority faculty development:

- Only six percent have a special office for minority faculty professional development;
- Only nine percent offer funding for minority faculty mentoring programs;
- Only 20 percent offer what they judge as "excellent" support of faculty in recognizing

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[35] Carter and O'Brien, p. 12.

[36] "In 1989-90, the system hired 85 faculty of color, but 35 (45 percent) left, and 47 (55 percent) stayed. In 1990-91, 65 minorities were hired, and 35 (54 percent) left, while only 30 (46 percent) stayed." Carter and O'Brien, p. 11.

diversity (such as supporting and valuing a faculty member's efforts to recruit minority students);
- Fifty-four percent said they allocate less than five percent of their faculty development budgets for minority faculty. Forty-three percent allocate less than one percent for minority faculty.

Slightly more than half (54 percent) of the institutions responding to the survey have an assigned individual or unit responsible for the coordination of faculty development. Fewer than half (47 percent) report a centrally organized program of faculty development, i.e., faculty development activity that is primarily coordinated by one office or unit. Approximately the same proportion (46 percent) rely upon decentralized approaches to faculty development. One-third (33 percent) of the respondents indicated that their current investment in faculty development is about the same as it was three years ago, while over half said that it is either much greater or somewhat greater (16 percent and 45 percent, respectively).

The most common types of professional development workshops or seminars offered to new faculty deal with orientation and teaching skills. More than half (56 percent) of the responding institutions indicated that new faculty orientation is available for minority faculty, while 69 percent said that it is available for all tenure-track faculty. Fifty-four percent of the respondents offer teaching skill workshops or seminars to minority faculty, and sixty-nine percent make them available to all tenure-track faculty.

The most common faculty development commitment cited by respondents was to the improvement of instruction. Fifty nine percent of the respondents have instructional improvement programs for minority faculty, and seventy one percent have them for all tenure-track faculty. Two of the least common faculty development services cited are departmental mentor programs (31 percent and 39 percent) and campus-wide mentor programs (22 percent and 28 percent).

The most prevalent types of faculty development services funded by institutions are:

- Travel to conferences (available specifically for minority faculty at 68 percent of the institutions and for all tenure-track faculty at 83 percent of the institutions);
- Purchase of special equipment, such as computers and software (57 percent for minority faculty and 72 percent for all tenure-track faculty);
- Curriculum improvement (55 percent and 70 percent);
- Faculty sabbaticals (52 percent and 73 percent).

The *least* common faculty development support strategy reported was mentors financed through external funds (nine percent for minority faculty and 10 percent for all tenure-track faculty).

Respondents were asked to rate their institutions' faculty development services and general support for faculty. Twenty percent gave their institutions ratings of "excellent" in recognizing diversity, while 47 percent gave "good" ratings. In clarifying criteria for advancement, 23 percent gave a rating of "excellent," and 45 percent gave a rating of "good."

Among the survey responses, there was a notable absence of innovative institutional mechanisms to increase minority representation. Approximately 89 percent of the participating institutions reported stable or increased funding over the previous three years for general faculty recruitment. Eighty-two percent reported stable or increased funding for minority faculty recruitment. However, the majority (84 percent) of responding institutions do not augment departmental budgets to make funds specially available for hiring minority faculty. Of those institutions that do, 20 percent report that faculty hired through the use of such funds are poorly received or received with some reservations by colleagues in their departments. Slightly more than half of the respondents (51 percent) feel that the funds at their institutions earmarked for hiring minority faculty are either moderately adequate (33 percent) or very adequate (19 percent).

Almost two-thirds (62 percent) of the respondents indicated that their institution did not have goals for minority hiring over the next 5 years. Of those reporting goals, 51 percent said that the target was to increase minority faculty hiring by 10 percent, and 38 percent said that it was to increase minority faculty hiring by 10 to 50 percent.

2. Officials at MHEC institutions identified three major obstacles to minority faculty recruitment: (1) a lack of qualified candidates; (2) generally low representation of minorities on campus; (3) institutional salary competition among institutions.

The most frequently reported obstacle to minority faculty recruitment was a lack of qualified candidates. Figure 10 summarizes this information. For all categories, the lack of qualified candidates is viewed as the primary problem by significant percentages: arts and humanities, 58 percent; science, engineering, and technology, 59 percent; social science, 49 percent for; and professional, 48-percent.

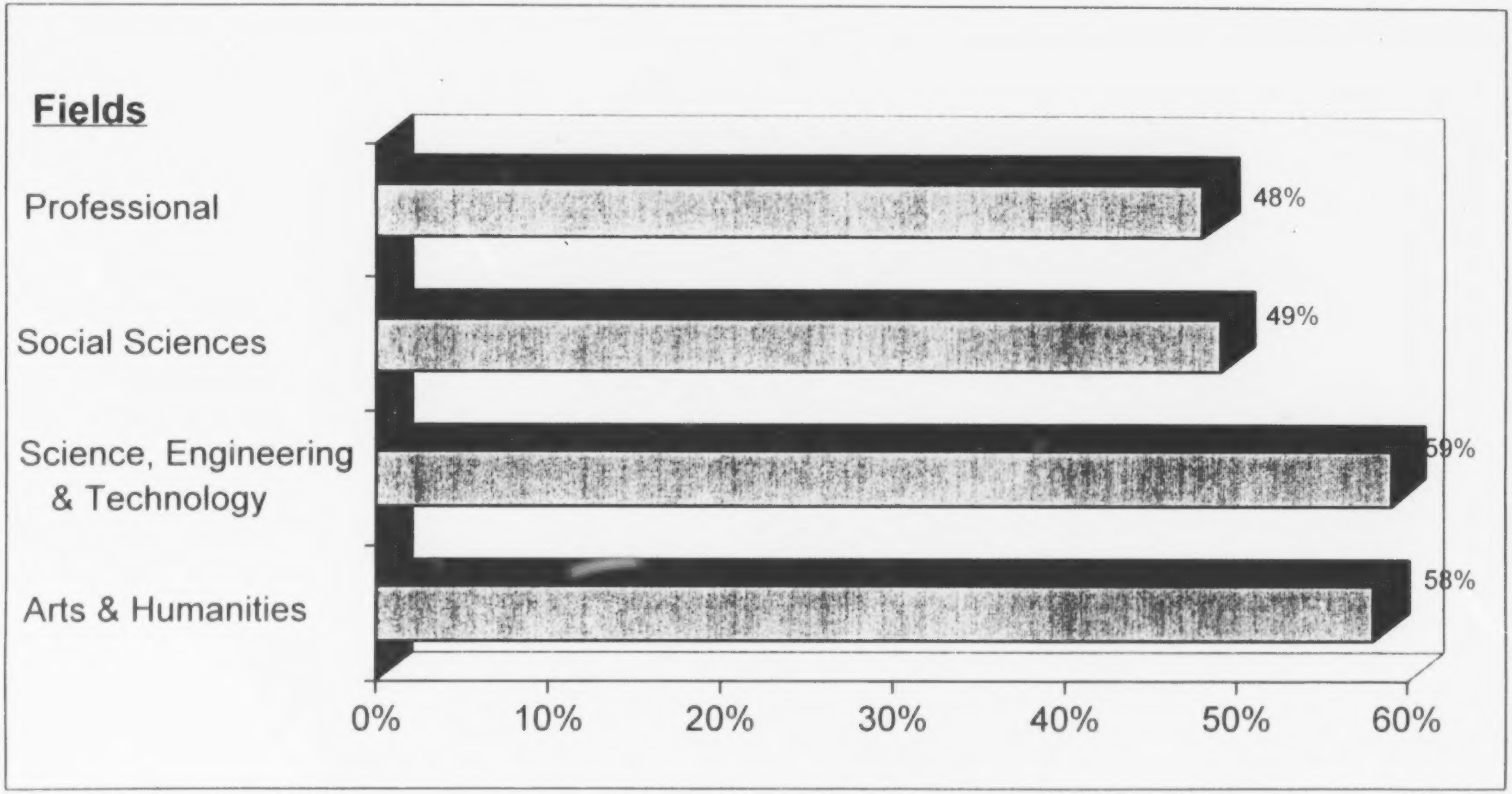
The second most frequently reported obstacle to minority faculty recruitment was generally low representation of minorities on campus (i.e., low numbers of minority faculty, staff and students). This was the most commonly reported obstacle to recruitment of minority faculty in the social sciences.

A third obstacle cited by many respondents was institutional salary competition among institutions. This was the most commonly reported barrier to recruitment of faculty in professional schools.

Institutional responses concerning retention efforts were mixed. Although close to 80 percent of the participating institutions rated the retention of minority faculty as either a high priority (38 percent) or a very high priority (39 percent), only six percent reported that their institutions have special offices designated for minority faculty professional development.

While 93 percent of the responding institutions reported that funding for faculty professional development had been either stable or increasing over the last three years, 58 percent reported stable or increasing funding for minority faculty professional development. Forty three percent of the institutions reported that less than one percent of the budget is allocated to minority faculty professional development.

Figure 10: Minority Faculty Recruitment Barriers: Perception That There Are Insufficient Numbers of Qualified Candidates



Source: Appendix C. Derived from MHEC Faculty Development Survey, 1990, p.18-21(Q29FC1, Q30FC1, Q31FC1, and Q32FC1).

3. Institutions indicated the primary obstacles to *retention* of minority faculty most commonly as salary competition with peer institutions and second most commonly as low representation of minorities on campus.

4. A few institutions in MHEC states have professional development efforts or program directed at minority faculty recruitment and/or retention that they consider "exemplary."

Generally speaking, the institutions surveyed did not indicate the presence of extensive programs to improve minority faculty retention and recruitment. This may be due to financial constraints as well as the absence of institutionally assigned responsibilities for minority faculty recruitment and retention.

However, 10 percent indicated they had exemplary minority faculty recruitment efforts and five percent that they had exemplary minority faculty retention efforts. An inventory of these programs appears in Appendix E.

A number of minority faculty members interviewed described supportive programs or efforts:

> *"I'm in a minority faculty development program where I'm hired at 75 percent of a full-time faculty person. And I'm in a doctoral program which is part of the program at the ***. I'm required to complete 12 to 18 hours a year in this particular program toward my doctoral degree. And at the conclusion of four years, with the doctoral degree, I'm guaranteed a tenure track program right within the university in the area that I'm in."*

> *"We have a minority predoctoral fellows program. A person teaches during the dissertation process, teaching a reduced load. [The] rest of [the] time they have time for research. That's one of the programs we have to increase minority faculty."*

> *"I talked the college into setting up two fellowships for graduate students, to take them out of the T.A. role and give them primary experience in the classroom under the supervision of a seasoned master teacher, so that in their particular discipline they could teach as a faculty person and get paid for it part-time while they're working. Get that on their resume, get the mentoring that goes along with that, so that at the time of graduating, not only did they have a degree, but they've had a significant teaching experience -- not a graduate teaching assistantship sort of thing, but more like a faculty position."*

> *"The provost has been really supportive and helpful. Actually, he sought me out to sit on some committees. I think we have a healthy respect for one another. We don't always agree...There are about five teaching faculty who are African American. They've been very supportive....They're wonderful to work with."*

"The university has always shown that they want me to be here. I never had a feeling that they were being adversarial to my being here...I felt very supported by me departments...I have good friends in the university and that's helpful."

"We initiated an endowment to establish an endowed chair for American Indian education and we managed after years of advocacy to get well over a million dollars for that chair. So the chair was finally established and he was recruited into that position. It will be forever more."

"The people here help me in every respect -- deans, chairpersons--they have matching money for me to do every possible thing they can, so I feel pretty happy here."

"...When a department has a position to hire from, the dean passes on lists and explicitly instructs the chair to write to departments trying to find candidates of color. Extra budgetary considerations are given to recruiting...Generally, we are allowed to bring in three candidates, but if we can identify a fourth candidate, such that among our four is a person of color, we're allowed to bring in four candidates. So, I think they put their money where their mouth is...On the other hand, I don't think that there are very direct pressures to hire the candidate of color, pushing other considerations aside."

"The dean was my mentor for a long time. He showed a lot of confidence in me. I think that he was very interested in diversity. He really believed in diversity and he really believed in minority faculty and their capability, so he gave us opportunities to do things."

CONCLUSIONS

STRATEGIES FOR REDUCING UNDERREPRESENTATION

1. Since representation differs among various minority groups, various types of institutions and various states, strategies developed to increase minority faculty representation must address these differences.

Not all faculty positions in the MHEC states require Ph.D.s. Some require professional degrees and others require master's. Conventional policies for the production of minority Ph.D.s and recruitment and retention of minority research faculty are based on a model inappropriate for the needs of many 2-year colleges and technical schools.

2. Higher faculty salaries would improve the representation of currently underrepresented minorities in higher education. Increasing the salaries of faculty members in MHEC states would have a greater effect on improving the representation of minority faculty members in MHEC states than would increasing the supply of minority Ph.D.s alone.

The foregoing analysis of the elasticity of faculty supply with respect to Ph.D. production is again germane here. Recall the discovery of an inelastic response of faculty supply with respect to increases in Ph.D. production. Nationally, a one percent increase in the probability of receipt of a Ph.D. increased the probability of faculty employment by considerably less than one percent. This finding holds true for racial and ethnic minority group members, as well as for all doctorates in Midwestern states. In some instances, the responsiveness of faculty supply to increased Ph.D. production is greater for the aggregate population than it is for underrepresented minority group members. Thus, there is the potential for an adverse impact on representation ratios.[37]

Also, since it is apparent that faculty salaries are relatively low in the region, one recruitment/retention strategy that institutions might consider, focuses at least in part on faculty compensation. A region-wide effort to increase the production of minority doctorates may be ineffective if the effort is undertaken while relative wages in the academic sector continue to fall and if wage disparities with other regions widen.

3. Because the Midwest has been a historic exporter of minority doctorates, steps to encourage Midwest-produced minority doctorates to stay in the region would help increase representation of minority faculty in MHEC states.

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[37] Unless new Ph.D. production is restricted to underrepresented minority group members, there is little to guarantee that the (small) overall increased supply in faculty will increase the representation ratios for those minority groups.

Given the fact that the Midwest is a net exporter of minority doctorates, it seems reasonable to conclude that national programs to increase the number of minority doctorates in the marketplace may be of limited help in increasing minority faculty representation in the Midwest. All things being equal, the other regions of the nation would benefit disproportionately from such an undertaking, whereas the Midwest benefit would be marginal in relation to the investment.

Many of the Midwest region's public and private research universities are already among the top-tier producers of doctorates,[38] and efforts to increase the quantity and quality of minority faculty elsewhere can be made immensely more effective by including universities with proven track records -- over many decades -- of producing (and exporting) well-trained minority doctorates.

In addition, if the demand for Midwest produced minority doctorates were to increase as a result of a nationwide Ph.D. program, the net-exporter problem could be exacerbated, making it even more difficult for Midwestern colleges and universities to attract and retain minority faculty.

Thus, steps to encourage MHEC-produced Ph.D.s to stay in the Midwest would likely have a greater effect on increasing the representation of minority faculty in MHEC states than would strategies simply to increase the production of minority Ph.D.s. Attempts to recruit and retain Midwestern minority graduates as faculty members in the region should help increase minority representation in MHEC states even without an increase in Ph.D. production. And they are critical to ensuring that Midwestern institutions will directly benefit from participation in a national or regional minority Ph.D.-production effort.

These strategies may work well to retain minority faculty at institutions that do not require Ph.D.s. As the region becomes more attractive for Ph.D. faculty, the pool of faculty with master's degrees and with professional degrees may also increase.

4. Minority faculty development through networking, mentoring, and research support would likely increase representation of minority faculty, because it would improve the attractiveness of the Midwest as a place to work relative to other parts of the country.

A number of minority faculty members recommended focusing on retention through the development of a more positive and encouraging professional environment, and through targeted faculty development initiatives. The main recommendations advocated networks of minority scholars, senior faculty mentors, and support for research and publications.

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[38] U.S. DOE, National Center for Educational Statistics, Digest of Education Statistics: 1994 (NCES 94-115), p. 304.

Networking

Networking was recommended by interviewed faculty members as a way to counterbalance the isolation that many minority faculty members experience in the academic workplace. It was viewed as a way to connect with minority colleagues from other institutions in the region. Several interviewees suggested that an organized sharing process would encompass both professional and personal aspects of the academic life.

African American:

> *"The first thing that pops into my mind is the whole notion of networking information, connecting with those faculty members of color who are out there -- and maybe even some faculty members who are not of color could be part of the network, too, who have information, who are working on particular projects, who are at different stages of their academic careers. And the information, maybe it could be connected by Internet or E-mail...with this whole new boom in technology, I think that would be a real doable thing."*

> *"Minority faculty development persons would meet and share experiences on a monthly basis or every two weeks or every two months. But there would be a time when minority faculty development persons would be able to share and reflect. That gives support. You could problem-solve, you could brainstorm. Even though you are in different schools or departments, it would still serve to bond, rather than feeling like you're just out there...And then there needs to be time when minority faculty development persons can meet with the dean or the department chair -- somebody who is talking to you and actually listening and not just for the facade..."*

> *"Strategies -- seminar or workshop in grant writing would be excellent...How to document things you do inside and out of the classroom...information about opportunities that are out there would be helpful."*

American Indian:

> *"There do need to be support mechanisms. You need much more in terms of support systems...because these environments are not of our culture, not of our world. Minority people, we are always fringe members of society, we're never fully accepted...This is America entering the 21st century. It's a racist society, period. That's an issue that many people don't want to address but that's the truth of it. So if there are going to be minority faculty, there needs to be support for them. Sometimes 'traveling in packs' would help."*

Asian:

> *"I think it would be great to have a retreat where several of the faculty could get together*

> *and talk about their problems as much as the positive thing. I think to share those ideas across the Midwest would be really great."*

Another informant alluded to the friction that often exists between faculty members from different groups of color. He suggests that the different minority groups should stop being negative toward each other in order to form a network that is able to bring about improvements for everyone on academic and personal levels.

> *"They usually don't communicate too well...it's hard to put them all together as a force, as a group, a large group. Something needs to get them together, then they can contribute their different opinions, points of view, different strengths, different cultural backgrounds...So maybe a regional strategy, we should connect them together to become a positive force...Some organization needs to do this kind of thing. Hold mini-academic forums, discussion, put them together. Sometimes, we can see the African, Asian, but they just don't come together."*

Hispanic:

> *"What about going to workshops? It could be orientation and research, it could be adaptability to your field, if you feel that is necessary, it could be in many different areas. It could be in teaching."*

> *"...that's helpful to get that networking and that kind of information disseminated at least throughout the region. Another might be additional funding to encourage people to go to different conferences to present..."*

The following faculty member makes a different recommendation: that some networking be done on an intraracial basis in order to help combat the feelings of cultural isolation:

> *"Formation of groups of Latino faculty, organizations of Latino employees. Meet with others, use our own language, share experiences in the classroom. Promoting individual organizations by racial or ethnic background."*

Mentors

According to a number of the interview participants, designing and implementing mentor programs would help new minority faculty become acclimatized to academia and the campus community as a whole. Some suggested that mechanisms be created to enable department chairs and senior faculty to facilitate the success of minority faculty. Each of the groups suggested mentors as a strategy:

African American:

> *"Well, get mentoring. That's definite...get as much mentoring -- because if you are on a*

tenure track position and supposedly they are hiring you with idea of tenuring you, then they should also be willing to avail you of the things that would support your packet. It's not just enough to hire them and leave it at that."

"I would say, find a mentor. Another African American mentor, the person doesn't have to be in that school."

American Indian:

"I particularly like the model which is...sponsored by the American Bar Association -- Project CLEO, the Council for Legal Educational Opportunity in Washington, D.C. They run a summer institute which blends into a continuing mentoring relationship. A real mentoring relationship. Not this: 'Hi, let's get together, have lunch and tell me what you'd like.' It's a real, structured mentoring relationship for law students. I think that's a wonderful model."

*"Mentors. You know, people to tell them like *** told me what to do. They need people like *** that can tell new faculty or even old faculty, 'Look, we do this -- try this strategy. Try this, I know what you're talking about'...To have a mentoring program and to have friends that you can discuss these things with and meet, so you can feel part of, so that you have some kind of social network. You're not there all alone. Like I don't know what I would have done if I had to come here like I did -- have no friends and no family. I would not have made it."*

Asian:

"He is my formal mentor, but I had to seek him out...when I came in about six years ago it was not such a formal process. Generally, the mentoring system, I believe, has been okay...I think what I would have liked was a more personal, social supportive mentor, so a different type of mentoring...a more personal, social mentor in more of a classical, Greek sense, who is your adviser, and who helps you be safe -- especially when there are these who experience both personal racism and institutional racism."

Hispanic:

"...if you could get something that would do what my mentor did for me, that would be the exact thing, but that's a difficult thing. My mentor became very instrumental and very important in my life...[H]e took me on as a research assistant and so I did some research for him...and then he offered me a postdoc for two years. I coauthored with him. I had a really good mentor. He got me my first position...He's the one who was looking out for me and he's the one who put me on the editorial board, he's the one who gave my name to others and they put me on editorial boards. I will always be grateful to him."

"My mentor knew that department and he knew how high they could go on salary so I

*negotiated up in salary and got it. I wasn't going to accept less because my mentor said not to. I was also able to negotiate staying at University of *** and completing my postdoc before accepting the position at ***. My mentor had just left that department at ***. When the position became available and I interviewed -- part of the motivation was to replace someone like my mentor and since I had worked with him and had similar interests in research...They liked him and wanted someone to take his place and mentor students."*

Support for Research and Publication

African American:

"So, I find myself doing research at the same time I'm going to school because I'm getting that message to...'publish or perish,' you know. You hear it at the faculty meetings, but they say [to me] 'You're a new faculty, don't worry about it.'. But at the same time they say [to me] 'You'd better start worrying about it.' I want to have a couple of things under my belt, so when I finish the program, even though it's supposed to be tenure track, I've got a little insurance that they are going to say, 'Hey! We think we want to keep ya!' So, there is that unspoken pressure to be doing it all at the same time."

American Indian:

"We must have diversity in scholarship. Indians get censored even before we get in print. More outlets are needed to publish articles on minority concerns. An editor I know implied that research on Indians is second rate. Tribal sovereignty is not an interest of mainstream publications. But outlets to publish articles about minority concerns are growing, and growing with respect to respectability."

Asian:

"Maybe there should be some sort of scholarly journals, publications, where minorities are expressed -- and they can take these as their academic credential...I think there should be some sort of regional goals -- not any one university. I mean, in the Midwest, that they publish new scientific ideas, or what needs to be done, things like that -- anything. And people express it and they say, Well, I published an article. I wrote.' I think that -- that gives you some confidence. That's the way I have built myself, that's the way many people have built themselves."

Hispanic:

"I would like to see something like the Spencer Grants for the Midwest region targeted to assist faculty members of color. I am thinking, what would help me? I need time to work on something. Time that is your own during the six-year period. Buy out half-time or

> *even a term. It is costly to implement but it would give us a leg up. This could be competitive and faculty could commit so they can't do other things. Try not to participate in other things on campus. Not increase [your] involvement in other things. Time to focus on your own work would be extremely helpful."*

The three strategies cited above by successful minority faculty -- networking, mentors and the of provision of support for research and publications -- are also widely acknowledged in the literature as effective strategies for improving faculty retention. While these are strategies that focus on retaining faculty once hired, they also have positive side effects in terms of recruitment. Many exemplary programs incorporate features such as these, although there is little evaluation or hard data to document cost and effectiveness.[19]

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[19] Evidence for this comes from our exemplary program review. A number of exemplary programs are described in Appendix E.

RECOMMENDATIONS

1. Salaries: MHEC should initiate a regional effort to assist institutions and states in making the case for raising faculty salaries to be more competitive with other regions and with private industry.

- MHEC should call attention to the significant role of market forces in the supply of minority faculty and disseminate information on regional faculty salaries.
- MHEC should draft model industry/higher education partnerships. One approach could encourage joint appointments of personnel in faculties and industry. Another approach could encourage more industry-sponsored faculty chairs. Both could help increase salary levels of faculty members.

2. Retaining Midwestern Ph.D.s: MHEC should initiate an effort to assist institutions in the region to recruit and retain a higher percentage of MHEC-produced minority Ph.D.s.

The Commission should consider, where appropriate, the development of regional initiatives that encourage and support institutional advances in minority faculty retention, such as senior faculty mentors, minority scholars networks, faculty forums on academic climate and professional development issues, and minority faculty research support.

Two means of increasing minority faculty productivity are to provide increased research assistance and to reduce teaching loads. This is precisely one of the major recommendations of the minority faculty interviewed. Institutional efforts of this type hold real promise for increasing faculty productivity.

Of course, the relationship between increased minority faculty productivity and minority faculty retention has neither been tested in this research nor demonstrated definitively elsewhere. In theory, at least, especially in the presence of high market demands for exceptionally qualified minority faculty, increases in productivity might reduce retention rates if the effect were that the more productive minority faculty are lured away by higher salaries or more prestigious positions elsewhere.

One obvious strategy for improving minority faculty productivity, while avoiding the brain-drain resulting from low retention rates, is to provide research assistance and teaching-load reductions in exchange for commitments to remain with the institution. This sort of *quid pro quo* obviously has ethical and moral dimensions. But therein lies the potential for a regional strategy. Perhaps funds for research assistance and "release-time" could come from a regional minority research network in much the same way that external grants are awarded to colleges and universities now.

In exchange for a grant, faculty would be required to remain with Midwestern institutions for a time equivalent to the grant benefit, perhaps with provision for payback if the service requirement is not met. Thus, for example, a person might receive an award from the regional minority research network for a quarter's leave each year for four years, plus research assistance. If the recipient wished to take another position within the region, there would be no payback obligation. On the other hand, if the recipient wished to move elsewhere, he or she would have to serve a full year before leaving to "pay back" the four-quarter leave. The payback is service to the employing institution (or perhaps any Midwest institution) for the amount of leave awarded through the network. If the person does not obtain tenure, there is no payback required.

In many respects this approach recognizes the value of minority research and community service time without seeming to create different promotion and tenure rules for minority faculty. There are also financial incentives to the participating institutions, since the costs of replacing released faculty members may often be lower than payments from the Network, which are based on the faculty salaries.

Regional retention initiatives will not eliminate racism or bias on college campuses. However, these types of efforts do hold promise for strengthening the capacities of minority faculty and for improving campus climates. With majority and minority faculty working together as equal partners in restructuring the nature of interactions that occur in the daily life of the academy, there is a better chance that the next generation will enjoy a very positive academic climate that captures the best of what higher education is all about. The beneficiaries will be not only minority faculty, but students, staff, administrators, and faculty of all colors and ethnic backgrounds.

3. "Chilly climate": MHEC should convene a regional summit of higher education leadership to identify problems of chilly climates on campuses for minority faculty members.

A summit would offer the opportunity:

- for minority faculty members to share their experiences related to campus climates and help identify the factors that exacerbate chilly climates;
- to elevate the consciousness of the nature and scope of chilly climates on campuses;
- for faculty members and other higher education officials to develop strategies to improve the climate for minority faculty members;
- to highlight successful practices and initiatives for dealing with climate issues.

The charges of a hostile work environment need to be taken very seriously. While it is entirely possible that the stresses minority faculty face parallel those majority faculty also face, the potential of a hostile environment to thwart minority recruitment and retention efforts always remains. The summit should address these issues along with the broader set of concerns that adminstrators will face in light of retrenchment of support for conventional affirmative action approaches to recruitment and retention of minority faculty.

4. Demonstration projects: MHEC should seek proposals from teams of institutions for demonstration projects that would develop, implement, and extend successful models of improving the climate and reducing turnover among minority faculty members. Using grant money, MHEC would select proposals to fund and then disseminate information on successful programs.

Our research shows a number of exemplary programs in the region that could be used as models. While more evaluation and analysis is needed to determine which programs work and why, the best format for undertaking such a region-wide evaluation is through encouragement of existing exemplary programs and incentives to expand programs that work on individual campuses to the broader region.

5. Pipeline efforts: MHEC should support further evaluation of the workings of pipelines and the strengths and cost-effectiveness of various approaches for various minority groups. MHEC should then propose ways to refine pipeline approaches.

Pipeline efforts have the attractive appeal of focusing on increasing the supply of *potential* faculty through traditional bachelor's-to-doctorate routes. There is no reason to ignore, however, the large supplies of minorities with advanced degrees working in government or industry. There is no reason to believe that scholars in fields that have adequate representations of minorities can not be valuable faculty in departments where there is a shortage of minority faculty. These efforts can be accomplished through interdisciplinary program offerings, dual or joint appointments across the arts and sciences or even between institutions both within academia and between academia and industry. In short, the MHEC should consider new and improved models of **pipelines** that value the existing skills and qualifications of scholars, teachers, or researchers who already exist.

The commission should take a leadership role in initiating conversations with other regional higher educational commissions to explore ways to refine conventional pipeline models of minority faculty underrepresentation.

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APPENDIX A

MINORITY FACULTY DEVELOPMENT PROJECT INTERVIEW PROTOCOL

I am engaged in a study that is trying to understand the experience of minority faculty in institutions of higher education. I am particularly interested in trying to understand the support systems and barriers that exist within universities, colleges, and departments that employ faculty of color. Let me begin with some broad questions.

I. History

1. Please describe your career path history?
2. What were some of your first experiences in academic settings?
3. What contributed to your choice of an academic career?
4. What were your reasons for choosing to come to (current institution)?

II. Being interviewed and prior to coming to (current institution)

1. What are some significant things you remember about interviews for academic positions?
2. What was the interview like for your position at (current institution)?
3. What did you know about (current institution) prior to coming here?
4. Tell me a story about when you first arrived? (What was it like?)

III. Present

1. Typically, the faculty role includes teaching, research, and community service. How does your job fit that description?
2. Tell me about the position(s) you have held since you have been here.
3. How did you learn to be a "faculty member"?
4. Who facilitated your on-the-job training? Who taught you the ropes?
5. Tell me about how you have been mentored in your position?
6. What do you enjoy most (least) about being a faculty member?
7. How do you know if you are doing a good job?
8. How welcome did you feel at the institution, college, department?
9. What support have you had in your development as a faculty member?
   (institutional, department chair, other colleagues, students, etc.
10. Tell me about challenges to your development as a faculty member?
11. How do you or did you overcome this (these) challenge(s)?

12. What keeps you here?
13. What has caused you to leave other higher education institutions?
14. Do you plan on staying in academia? (If no), what would it take for you to stay or return?
15. Tell me a story about what it is like to be a (woman, minority).
16. What expectations did you have about your job when you first started? How have your expectations about the job changed?
17. What advice would you give to a new minority faculty member coming to (current institution)?
18. What do you wish you knew before beginning a faculty career?
19. What strategies would you recommend for the development of faculty of color?

IV. Demographic data

1. What is your current position title?
2. How many years have you held this position?
3. How old are you?
4. When and from which institution(s) did you receive your undergraduate and graduate degrees?
5. What is your racial/ethnic background? Male/Female?

*The authors wish to thank Estela Bensimon for her generosity in sharing her expertise in the development of this questionnaire. The format and some items come from Bensimon and Tierney's Institutional Socialization and Faculty Peer Review Protocol.

APPENDIX B

MINORITY FACULTY DEVELOPMENT PROJECT INTERVIEW SUMMARY

This qualitative study is part of the Midwestern Higher Education Commission (MHEC) Minority Faculty Development Project (MFDP). The project was designed to provide the necessary background and planning information to propose a specific set of strategies that the MHEC might adopt in order to enhance minority faculty recruitment and retention at member institutions in the Midwest.

Sample Selection Process

Respondents in this study were selected from four and two-year midwestern higher education institutions. Researchers pursued representation by gender, racial/ethnic group, discipline, and academic rank. Potential respondents were identified by members of the following committees: 1) The MHEC state commissioners, 2) the MFDP project steering committee (composed of higher education representatives from each MHEC member state), and 3) the MFDP panel of scholars (faculty members involved if research related to minority faculty recruitment and retention). They supplied lists of possible interviewees who were willing to share some of their experiences. Additional names were supplied by some respondents upon completion of their interviews.

Other information was gathered from two separate focus groups. These participants were chosen because of their involvement in one of the exemplary programs designed to provide greater access to the professorate by minority academics. Contact persons were identified on the site and these persons assisted the MFDP research team in scheduling focus groups with scholars participating in the exemplary program.

Sample Description

Interviews were conducted with fifty-five individual faculty. Nine faculty participated in two focus groups. Data from the sixty-four faculty of color are reported here. The sample includes faculty of color from seven midwestern states: Illinois, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio. Most of the respondents (forty-four) were tenured. Their average age was forty-six years old. Twelve professors were in the sciences. The number of respondents by race and gender were: American Indian 11 (7 male, 4 female), African American 28 (13 male, 15 female), Asian 11 (7 male, 4 female), and Hispanic (6 male, 8 female).

Data Analysis

Interview data were analyzed with the assistance of a qualitative software program named Nonnumerical Unstructured Data: Indexing, Searching, and Theorizing (NUD*IST). Each interview and focus group was tape recorded and transcribed. Each transcript was then entered into the NUD*IST program. Once entered into the program, emergent themes from each interview were coded and named by category (using categories generated primarily from the interview protocol). This enabled the researchers to compile into a single report all similar information (designated under one category) from each interview. Researchers were then able to conduct comparisons and analyses of the data based upon race/ethnicity, gender, type of institution, tenure status, and discipline.

Interview Results

The primary objective of this part of the project is to help educators and policy makers understand those factors that influence or contribute to minority faculty underrepresentation from the perspectives of those interviewed for this study. Much of what is said here is confirmed by the literature reviewed for the study. However, few studies reported in the literature focus solely on midwestern institutions. This study asked respondents to describe their experiences as minority faculty in Midwest higher education institutions. Analysis of these interview data shows the following concerns expressed by respondents:

- Race/Ethnic Bias
- Isolation
- Lack of information about tenure and promotion
- Unsupportive work environment
- Gender bias
- Language barriers
- Lack of mentors
- Lack of support from superiors

Many of these concerns may also be reiterated by all faculty with the exception of race/ethnic, gender, and language bias. This summary will focus on a reporting of data primarily by race/ethnic background and the most mentioned challenge as described by respondents: the continuing challenge of race and ethnic bias in the academic work place.

Race/Ethnic Bias

Study respondents recognize that any person, regardless of race or gender, faces struggles in pursuit of a successful academic career. However, minority faculty members interviewed for this study almost all state that they are burdened with additional challenges that are not experienced by their white colleagues. In their own words, respondents reveal that they face covert and overt forms of racial bias. Manifestations of race/ethnic bias as described by faculty of color include racial bias surrounding the following issues:

1. Denied Tenure and Promotion Due to Race/Ethnicity
2. Being Expected to Work Harder Than Whites
3. Having their Color Given More Attention than their Credentials
4. Feelings of Being Treated Like a Token
5. Lack of Support or Validation of Research on Minority Issues
6. Being Expected to Handle Minority Affairs
7. Too Few Minorities on Campus

These seven manifestations of race/ethnic bias as described by respondents will now be presented with supporting quotations. In most cases, gender, race/ethnicity, tenure status, institution type, and discipline affiliation are reported for each respondent quoted.

1. Denied Tenure and Promotion Due to Race/Ethnicity

> (Female, Asian, Tenured, 4 year, Science)
> This respondent said that she didn't get a promotion because she did not fit "the profile": "When a vice-chancellor position came up, there were many names floating around. First there were no women's names floating around, but here I was a woman and an Asian American, and I felt that if I were a white male, my name would have been out there."
>
> (Male, African American, Tenured, 4 year, Humanities)
> Describing a previous attempt at tenure, this respondents states: "That whole year I had more

publications, more presentations, and community work than any of the faculty that I supervise...We found out who was promoted through the student newspaper, and I looked and I wasn't promoted. In the student newspaper of all things. No one had the decency to call..."

(Male, Asian, Tenured, 4 year, Science)
"And I've heard some anecdotal things with one of my friends that was told very straight-in-the-face, you might say...He was going for a provost position and the president of that place said, well you know, you should try this other place. There's more Asians there..."

(Female, African American, Not Tenured, 4 year, Social Science)
"I was denied on the fact that I wasn't here long enough and one of the faculty had been here one year less than I had, they were granted promotion...so the next year I applied for promotion again and was denied."

(Female, African American, Not Tenured, 4 year, Humanities)
"I don't know if I ever really have grieved over not getting [tenure]...I don't think I really sat down and let myself be really mad."

2. Being Expected To Work Harder Than Whites

Being in the "spotlight," these minority faculty members feel as though they are under almost constant scrutiny. Thus, they believe that they must always be at their best and constantly exceed what whites do in a comparable situation. It appears that to achieve within the normal realms of expectation might be construed as somehow lacking the necessary drive to become a successful faculty member:

(Male, Hispanic, Tenured, 4 year, Social Science)
When beginning a faculty career, this person talks about the advice given to him by his mentor: "Look, when you are a minority you are going to have to be better than anybody else and, whatever you do, you have to take great care. You're going to have to be sure that you are very meticulous, that you do your best, that there are no questions about anything that you do..."

(Male, African American, Tenured, 4 year, Social Science)
"The competence of minority faculty is more apt to be questioned and challenged, it makes it more difficult."

(Male, American Indian, Tenured, 4 year, Social Science)
"Rightly or wrongly, many of my non-minority colleagues, they are never 100% sure that a minority person is here because they are good at what they do or because of affirmative action."

Sentiments were expressed about how the minority faculty person kicks into high gear especially when in pursuit of tenure. This means that even when the burden becomes nearly unbearable one must press on in order not to be judged unfavorably. Take for instance these comments by one such faculty member:

(Female, Hispanic, Tenured, 4 year, Social Science)
"I do not want to jeopardize my tenure. I would like to spend less time in teaching and more in research. I would prefer something more balanced in teaching and research. They are expecting too much in terms of teaching."

This same informant went on to say that she always felt that she was expected to represent her whole ethnic group and that this was not something expected of white faculty members. Further she remarked that one is expected to teach and do research on top of all other expectations placed on minority faculty.

3. Having Their Color Given More Attention Than Their Credentials

Being very conspicuous is an added burden shouldered by the minority faculty person. This situation creates a great deal of discomfort for them because they feel diminished in their professional capacity. One person remembered being introduced as the chair of the minority affairs committee with no mention of her qualifications or background. Respondents long to be recognized by their academic credentials first:

> (Female, Asian, Tenured, 4 year, Science)
> "...I'm just the department chair..and I meet with a lot of people who don't know me, you know, prospective students and their parents, and I know that their first reaction to me is that I'm an Asian American woman, not that I'm a scientist or that I'm competent..."

> (Female, African American, Not Tenured, 4 year, Humanities)
> "It's like you get this look and all of a sudden you think to yourself, that's right, I'm black. That's right I'm a person of color. And, so, they're not seeing me the way I see myself. They see that [color] first and then get their little shock..."

4. Feelings of Being Treated Like a Token

The respondents do not want to be seen as a show piece or for others to think that standards were lowered in order to hire them:

> (Female, American Indian, Not Tenured, 4 year, Social Science)
> "It's just like when they trot me out for the minority students and then they trot me back in. It's the same notion, they trot me out when they need attention brought to renovation, and then they trot me back in when they no longer need me."

> (Male, Asian, Tenured, 4 year, Science)
> "...it was clear to me that in many of the searches, being an Asian did not help and that in some of the cases I felt that I was put in there just to make the slate look like it was well-rounded and there was no particular intention of choosing the person."

> (Male, American Indian, Tenure Status Unknown, 4 year, Social Science)
> "I think that one of the challenges is to prove that you don't have your job because you were an affirmative action hire, that you're not a token."

> (Male, Asian, Tenured, 4 year, Social Science)
> "...one person really got mad at me...He was resentful that I was hired...he thought it was solely on my race."

> (African-American)
> "You know, students sometimes ask, well do you think you got your job because of affirmative action?"

> (Male, American Indian, Tenured, 4 year, Social Science)
> "You feel like a token, I always feel like that, feeling like a token. The token Indian."

5. Lack of Support or Validation of Research on Minority Issues

One person said that her research had to be published in the "right" journal in order to be respected, while another said that her work was not valued at all.

> (Female, American Indian, Not Tenured, 4 year)
> "But the chair said, get rid of this Indian stuff, when he looked at my vita...and I looked at him [and said] I'll do anything else that you want me to do...but I can not give that up..."

6. Being Expected to Handle Minority Affairs

In addition to maintaining the traditional faculty functions respondents state that they are expected to, unofficially, handle minority affairs:

> (Female, Hispanic, Not Tenured, 4 year, Social Sciences)
> "There is a lot of service. A little bit of time here and there and it all adds up. It is hard to say no especially on minority issues when there are so few people."
>
> (Female, American Indian, Tenured, 4 year, Social Sciences)
> "Issues of pedagogy and cultural diversity and gender are not the province of just women or just faculty of color. I think that happens too often and that puts the faculty of color person or woman on the spot, to kind of convince or persuade---be this change agent..." The faculty members feel the added pressure, but are caught in a "catch 22" because minority issues are also important to them.
>
> (Female, Hispanic, Tenured, 4 year, Social Science)
> "It's time consuming..almost every committee wants you to be on it. It gives you opportunities at the same time."
>
> (African American)
> "...and every time a new black student comes over to the college, [and colleagues say] why don't you go talk to them, which I don't mind doing, but it's the extra expectation..."
>
> (Male, African American, Tenured, 2 year, Social Science)
> "...it was frustrating, too, because anything that had to do with diversity, people dumped it on my lap...and that's just too much work for one person, and diversity should be everybody's job."

7. Too Few Minorities on Campus

Being one of only a few minority faculty members, or the only one on a campus presents a problem. Although most of these faculty members continue to function as well as possible in this situation some of them said that it presents a special problem:

> (Male, African American, Tenured, 4 year, Science)
> "...I've gotten tired of going to faculty meetings and being the only African American there."

Another reason this situation poses a problem is that it lessens the necessary message to minority students whose numbers are on the rise in some institutions:

> (Male, Hispanic, Not Tenured, 4 year, Humanities)
> "We need to have a lot of representation, the faculty numbers ought to increase because of the reason of channeling students through them as mentees...We have not increased proportionately with the student increase."

One respondent believes that the small numbers of minority faculty at many institutions perpetuates the notion that minorities can not achieve as highly as whites in academia:

> (Male, African American, Tenured, 4 year, Social Science)
> "...And I think that the paucity of black professors and administrators in these kinds of settings reinforces the presumption people have that we're out of place and it leads to all kinds of ironic, comical, and downright restrictions on life chances for blacks and other minorities in these kinds of settings."

Issues of Concern for Specific Minority Groups

Race/Ethnic bias appears to be pertinent to all of the minority groups represented by people taking part in this study. At the same time there were a number of issues that surfaced as being more of a concern for specific groups. Those concerns are presented in this section.

African Americans

The most mentioned challenge for these respondents was that of being visible and invisible. Respondents expressed frustration because they feel that they are very visible because of their color and their contribution to diversity, while sometimes concurrently they are overlooked because they don't fit the images of what others consider to be the norm.

1. Visible

> (Female, African American, Tenured, 4 year, Social Science)
> "Coming on campus, it was perceived that you got the job because you're a minority...You're not perceived of having something to offer. It's like---you've had a good day if you do something well, you're not quite as good at things, not as deserving of some of the rewards."
>
> (Female, African American, Not Tenured, 4 year, Social Science)
> "I wonder, when I go into those kinds of meetings, when candidates are coming in, if my fellow colleagues look at me in terms of their equals or is this just another project---a minority development project---and so it's to get numbers, it's to get minorities..."
>
> (Male, African American, Tenured, 4 years, Science,)
> "One of things I've gotten tired of is going to faculty meetings and being the only African American there...I was saying that we needed to bring in more African Americans but no one really was taking it seriously...It is extremely difficult to work in that environment...I am looking to leave...if they don't bring on another African American."

2. Invisible

> (Male, African American, Tenured, 4 year, Social Science)
> "I don't feel like a part of the department. I have been alienated from my department for a number of years...It is not an environment that's nurturing for me."
>
> (Female, African American, Not Tenured, 4 year, Science)
> "The college was very chilly. There's the typical thing that happens when people don't feel you came through the ranks. They thought that it was a top-down move to get me in this campus. So, a lot of faculty didn't feel like they had voted for me. So, the first year was hands-off. There were a lot of people who just didn't know what to make of me...So, I got jerked around a

lot, swept aside and I wasn't bitter about it. That tells you pretty much what---how I was received within the department and the kind of stuff that happened."

(Male, African American, Tenured, 2 year, Social Science)
"A lot of times, when I expressed dissatisfaction at the hiring rate---that, I think, appalling hiring level of people of color, the conditions and the atmosphere for minorities at the school, people look at me with a puzzled look and say, 'Well, I thought you were happy. We didn't know you felt like that.' So it's almost as if they've been looking at me as an honorary white person, or honorary European, if you will. And all the while I thought I was expressing me as a unique African American individual there."

American Indians

One of the greatest concerns for these respondents was that of identity. They state that they must maintain their link to their own Indian community while at the same time participating in an often incompatible academic community.

(Female, American Indian, Tenured, 4 year, Social Science)
"I think that American Indian people particularly have the problem of identity to deal with. All American Indian people have it whether they're traditional, whether they're full-blood, whether they're mixed blood, whatever their background, identity is a very complicated factor in their personal and their professional life."

(Male, American Indian, Tenured, 4 year, Social Science)
"The role of the university is not to make you comfortable as an Indian, the role is to strip the Indian away from you..."

(Male, American Indian, Tenured, 4 year, Social Studies)
"I would say that over the years, the biggest challenge that I've had to face as an Indian faculty member is that I've had to make sure that I don't act in such a way that the Indians in the community feel that I'm trying to 'put on the dog,' or feel that I'm better than they are...I have to remind myself of that periodically. As long as you do, you can steer clear of the pitfalls of that."

The struggle between maintaining American Indian identity and assimilating into the university culture is further highlighted by the two contrasting quotes that follow:

(Male, American Indian, Tenured, 4 year, Social Science)
"I've done my best to make this system more accessible. I don't think that it robs us of our culture. It does lead us away from our past, but education does that for all people and the real challenge to Native Americans today is to live in [an] evolving culture and contribute to its evolution, rather than struggle to maintain its history."

(Female, American Indian, Not Tenured, 4 year, Social Science)
"See, it's what you want. Now I would never go any place where there aren't American Indian students. That's one thing I would not do, I learned my lesson when I went to _____. But some American Indians just simply want to do research and want to write that book and it doesn't really matter where they are. They could teach at Harvard, that's fine. Personally, I would not want to teach at Harvard because of the simple reason there aren't any Indians there."

Asians

Three issues emerged as very pertinent to these respondents. A number suffered from what could be termed a "glass ceiling," beyond which they were not able to pass. Another concern revolved around language. It was not that they necessarily had a problem with the language, but that others often perceived them as not being able to adequately speak or fully comprehend English. Working hard while absorbing the difficulties in silence appeared as an additional burden.

1. Glass Ceilings:

> (Male, Asian, Tenured, 4 year, Science)
> "...as you know, there are very few Asians, especially in academic administration. Part of the reason for that is there's a stereotype that says: Well, we don't expect Asian Americans to be able to do that kind of thing. They're okay for being in sciences and things like that. Non-verbal skills are fine, but we don't expect any Asian to have any verbal skills or being able to write memos that command the respect of the faculty...There is a stereotype that Asians are not managers, are not administrators. They're good faculty members, but that's all they can do."
>
> (Female, Asian, Tenured, 4 year, Science)
> "First there were no women's names floating around, but here I was a woman and an Asian American, and I felt that if I were a white male, my name would have been out there."
>
> (Male, Asian, Tenured, 4 year, Science)
> "And I've heard some anecdotal things with one of my fiends that was told very straight-in-the-face, you might say...He was going for a provost position and the president of that place said, well you know, you should try this other place. There's more Asians there..."

2. Perceived Language Difficulties:

> (Female, Asian, Tenured, 4 year, Science)
> "People ask me why do I speak English so well, because they've already superimposed on me that I don't belong here...I used to think it was a harmless little question but now I feel that the messages I have received is that I don't belong, I don't look like I belong and I think that that's very common for all ethnic minorities."

3. Suffering in silence:

> (Male, Asian, Tenured, 4 year, Science)
> "I guess essentially I work hard. So I guess I try to---at least let me put it this way---I prevent something from happening...So, I don't make waves. I wouldn't even dare to do this kind of thing...What are you going to do, you know? You know?"
>
> (Male, Asian, Tenured, 4 year, Science)
> "...when minority people are more vocal, then there are less chances [opportunities]. So, over the years I've kept myself blind and didn't scream about it, and so things have gone on...what keeps me here at the present position is maybe my ego...I don't leave a place considering it a defeat. I always feel I leave a place only after I have succeeded in my efforts...I've always told people, 'Never quit!'...prove to yourself that you have won, and then you can say bye."

Hispanics

Two challenges that produced a number of comments for this group were cultural isolation and being overworked.

1. Cultural Isolation:
Cultural isolation here refers to the informants feelings about being separated from their traditions, customs, and language. Not only does this cause anxiety for the informants, but it also leads the members of the surrounding culture to perpetuate debilitating assumptions and stereotypes about the Hispanic faculty person.

> (Female, Hispanic, Not Tenured, 4 year, Social Science)
> "...this is something that has been a struggle since I came to this country from Puerto Rico...there was a lot of prejudice...people at first, they start laughing at your accent...It's just the stereotypes that's always been in the U.S.A., they put all of the Hispanics in the same spot. 'None of you work,' or 'all of you are on welfare and you're not going to get off of welfare...We need more Hispanics...our students, they don't have an image of Hispanic faculty, administrators..."
>
> (Female, Hispanic, Tenured, 4 year, Social Science)
> One situation that is particularly challenging for me is the language. You are hesitant to participate. Some colleagues become impatient with you...Sometimes I just keep quiet...lack of a [perfect] command of English can be seen as if you were not good enough in your field...They don't have any Latinos here. You feel isolated in terms of your culture. You don't have the other people that listen to your music, eat your food..."

2. Being Overworked:

> (Female, Hispanic, Tenured, 4 year, Social Science)
> "Dilemma---the expectations that I know everything, expertise in everything that happens---race relations is one..."
>
> (Female, Hispanic, Not Tenured, 4 year, Social Science)
> "There is a lot of service---committees where I'm representing the whole institution at various things...Not just within the department but university-wide committees...This year service seems to be eating away my time. At every level, they don't realize that each is asking for a lot...It is hard to say no especially on minority issues when there are so few people...I realize how few people are available [to address these issues]...I sit on fifty-three doctoral committees. Doctoral students take a lot of time for the dissertation process. I turned down being chair of one doctoral student's committee and she nearly cried. She was a good student studying multicultural issues, but I can't chair these committees. I'll wind up spending all my time correcting dissertations and not doing my own writing."

Challenges Due To Sex Bias

Several female (fourteen) faculty indicate that they experience what some call the "double whammy," meaning that their success as a faculty member is somehow hampered by their being a combination of minority and female. Two male respondents state that they had witnessed such sex bias taking place. The fourteen women represent nearly one half of the total number of female respondents. Four themes that emerged, in descending order, were:

1. Feeling isolated and devalued
2. Being overused by departments and/or institutions
3. Being torn between family and career

4. Being challenged by students

Respondents describe the manifestations of sex bias in the following quotes:

1. Feeling Isolated and Devalued

(Female, African-American, Not Tenured, 4 year, Science)
"I have to think about the fact that black females or any female in the field of __ which has been predominantly a white profession, has a problem. Many females in the college that are white complain about the fact that up until recently, like last year, we had never had a full professor in ___. It's changing, but it's not changing fast. And then you add to that being the black female who has to be superwoman."

(Female, African-American, Tenure Status Unknown, 4 year, Social Science)
"I got a sense at times like, 'Shut your mouth. We don't want to hear it. You're a woman.' So I think there is some [negative] climate on this campus, and not just minority because I hear it from the white females about how they don't get promotions like the guys. And I don't think that's just unique to this campus, I think that's kind of epidemic across the United States."

(Female, African-American, Tenure Status Unknown, 4 year, Social Science)
"I had one of the female faculty say to me, 'I'm the only woman in this department and they go off on Thursdays to golf and they make decisions about things that affect the department when they're golfing and because I'm not there, I find out about it later.' So, it's that kind of a---."

(Female, American Indian, Not Tenured, 4 year, Social Science)
"I felt really isolated---more marginalized than I normally even feel. And it was like a double whammy, the only minority and the only woman. For instance, when the secretaries had to go to the restroom, they'd come and get me to watch the phones. They never went and got the new male faculty person. They never got him to watch the phones."

(Female, American Indian, Not Tenured, 4 year, Social Science)
"This one dean---I don't know what he was dean of , but he was writing down all the federal slots that I would fit in as far as hiring, you know, equal opportunity. And he says, 'Okay, you're a woman, you're over fifty-five, you're an American Indian,' and then he looks at me and grins. He said, 'Do you have a handicap?, You know, these schools do have to fulfill these guidelines and in getting me they can check a lot of boxes."

(Female, Asian, Tenured, 4 year, Science)
"...our _____ position opened up and there were a lot of names---and so it was clear that an active [internal] person would be named. I would hear on the grapevine,'so-and-so's' name---and this other administrator's name came up a lot. I worked with this person, well, I thought [that] I was more qualified than this person. I never heard my name brought up. Nobody every came to ask me if I was interested...here I was a woman and an Asian American, and I felt that if I were a white male, my name would have been out there. I mean I am sure of that. But it never was..."

(Female, Asian, Tenured, 4 year, Social Science)
"On the negative side, I think the white women feel very competitive towards me. I think they feel threatened by me, and my colleagues are---the women faculty are all white women and, even though I'm a feminist and they're also feminists, but I have not been accepted..."

(Male, Asian, Tenured, 4 year, Science)

"For new faculty if I were a minority or woman I would say that you need to be a little more careful whenever you speak. You have to make sure you understand the overall climate, political climate, something like that. Don't get involved too early, make sure you understand the overall situation. Then start to take your stand. Don't take your stand too early. That could damage your tenureship or whatever."

(Male, Asian, Tenured, 4 year, Science)
"I served on a hiring committee, I'm the only minority, it's a university regulation to put a minority in there. So, I've served on several...there was one time that there was quite a bit of hatred toward a woman. Because of that I think the person was not considered for the job. The woman's husband was favored for a position. Both of them had been faculty members and both had degrees from Harvard. Afterwards one committee member complained that the man didn't get to talk very much because his wife talked so much. I felt that he [the committee member] was being biased against the woman."

2. Being Overworked

(Female, African American, Not Tenured, 4 year, Humanities)
"I mean, I was a female and African American. Needless to say, I got used...I was doing a lot of things in terms of serving on this board, serving on that board, being faculty adviser for one of the professional fraternities...In retrospect, since I didn't get tenure, neither the department chair or dean said, 'okay, well, this is what you're lacking in.'...I basically had to find my own avenues."

(Female, American Indian, Tenured, 4 year Social Science)
"...for a long time---this is hard to believe---for a long time I was the only woman of color on this faculty---for years. It meant that I was a twofer, I was asked to be on every committee imaginable...This campus is very, very white. Almost all of the Indian faculty have been men."

(Female, Hispanic, Not Tenured, 4 year, Social Science)
"The university is using and abusing people to teach courses, do administration, committee work but they have less authority, status, and not any hope of acquiring a permanent position. They will have low self-esteem as a result. This may affect women and minorities more. This is a tough area to study---marginality."

(Female, Hispanic, Tenured, 4 year, Social Science)
"When you are one of three or four Latinas and being a woman, almost every committee wants you to be on it. It give you opportunities at the same time. I think you are expected to do a lot of things not expected of other faculty."

3. Being Torn Between Family and Career

(Female, American Indian, Tenured, 4 year, Social Science)
"I know that there are lots of values that are indirect, that sometimes get in the way of the careerist profile. Family for example. My family is very important to me. My family is more important to me than my career. That is not the position that will, at least on the surface, get one to the top in the conventional academic setting..."

(Female, Asian, Tenured, 4 year, Social Science)
"We became parents after 17 years of marriage. Although, the university---I mean, that's one of the nice things about being an academic---to have some flexibility, you know, in your schedule. But I think I under-estimated the pull from both sides. So did my husband because

it always has been joint parenting. And that took a lot more than perhaps we had realized. It continues to do that."

4. Being Challenged by Students

> (Female, African American, Not Tenured, 4 year, Social Science)
> "Let's put it like this, if a white male professor says something that's wrong in class, my observation is that even if the students perceive that it's wrong, they may say something outside of class, but they hesitate to challenge a 50+ white male professor. They feel quite comfortable challenging an African American women in class, and I find that...I just think it's society and the way that they're brought up and the way that they perceive people."

Suggested Strategies

Respondents were asked to describe strategies which they felt would be most helpful in assisting faculty of color to have successful academic careers. Several strategies were suggested with the most often mentioned being:

1. Networking/Workshops/Creation of Social Ethnic Groups
2. Mentoring
3. Better Support for Research and Publication

There were other strategies, though mentioned less often, believed by study participants to be key to the success of faculty of color:

4. Special Assistance for ABD's (All But Dissertations) and Post Doctoral Fellows
5. Improved Spousal/Partner Support
6. Improved Methods of Recruiting/Hiring, and Improving the Environment
7. Early Incubation of Possible Future Faculty

1. Networking

Networking was touted as a way to combat the isolation that so many respondents reported as being part of their experience. It was seen as a way to connect with others from institutions throughout the Midwest. Through this connection respondents suggested an organized sharing process that would encompass the professional as well as the personal areas affected by academic life. The following quotes are ethnically grouped, yet they share the common thread of wanting to reach out and share their experience with other faculty of color.

African Americans

> (Male, African American, Tenured, 2 year, Social Science)
> "Yeah, the first thing that pops into my mind is the whole notion of networking information, connecting with those faculty members of color who are out there---and maybe even some faculty members who are not of color could be part of the network, too, who have information who are working on particular projects, who are at different stages of their academic careers---and the information, maybe it could be connected by Internet or E-mail. But, certainly, that sharing of the information. And with this whole new boom in technology, I think that would be a real doable thing."

(Female, African American, Not Tenured, 4 year, Social Science)
"Minority faculty development persons would meet and share experiences on a monthly basis or every two weeks or every two months. But there would be a time when minority faculty development persons would be able to share and reflect. That gives support. You could problem-solve, you could brainstorm. Even though you are in different schools or departments, it would still serve to bond, rather than feeling like you're just out there...And then there needs to be time when minority faculty development persons can meet with the dean or the department chair---somebody who is talking to you and actually listening and not just for the facade..."

(Male, African American, Tenured, 4 year, Humanities)
"Strategies---seminar or workshop in grant writing would be excellent...How to document things you do inside and out of the classroom...information about opportunities that are out there would be helpful."

American Indians

The following respondent suggested "traveling in packs" as a metaphor for networking. This networking, as he reported, could be a way for faculty of color to be able to cope with being fringe members in an inherently racist society.

(Male, American Indian, Tenured, 4 year, Social Science)
"There does need to be support mechanisms. You need much more in terms of support systems...you need much more in terms of support systems because these environments are not of our culture, not of our world. Minority people, we are always fringe members of society, we're never fully accepted...This is America entering the 21st century, it's a racist society, period. That's an issue that many people don't want to address but that's the truth of it. So if there are going to be minority faculty there needs to be support for them. Sometimes 'traveling in packs' would help."

Asians

(Female, Asian, Tenured, 4 year, Humanities)
"I think it would be great to have a retreat where several of the faculty could get together and talk about their problems as much as the positive thing. I think to share those ideas across the Midwest would be really great."

(Female, Asian, Tenured, 4 year, Science)
"I basically wanted some friends that I could just be with in a non-threatening way, people who weren't going to evaluate me, but people who have the same professional goals in terms of being at the University and so on...You really need to seek out a group that you can really just be comfortable with. It doesn't have to be the same gender or same racial mix. although I think that helps a lot."

This respondent goes on to describe how networking combats isolation and promotes faculty retention:

"...in my experience isolation is a killer, whether you're isolated from your colleagues on a professional basis - you know, you don't have anyone to talk to about your research, or you don't have anyone to talk to about teaching, advisement issues...Plus, I think isolation occurs on a personal level. If you just don't feel that you have some friends either in your department or on the campus somewhere - or some strong network off the campus, it doesn't have to be on campus - then people leave."

The following study participant alluded to the friction that often exists between faculty members from different groups of color. He suggests that the different minority groups should stop being negative toward each other in order to form a network that is able to bring about improvements for everyone on academic and personal levels.

> (Male, Asian, Tenured, 4 year, Science)
> "They usually don't communicate too well...it's hard to put them all together as a force, as a group, a large group. Something needs to get them together, then they can contribute their different opinions, points of view, different strengths, different cultural backgrounds...So maybe a regional strategy, we should connect them together to become a positive force...Some organization needs to do this kind of thing. Hold mini-academic forums, discussion, put them together. Sometimes, we can see the African, Asian, but they just don't come together."

Hispanics

These first two quotes echo the networking suggestions made by individuals in the other groups:

> (Hispanic)
> "What about going to workshops? It could be orientation and research, it could be adaptability to your field, if you feel that that is necessary, it could be in many different areas, it could be in teaching, it could be in different fields."

> (Hispanic)
> "...that's helpful to get that networking and that kind of information disseminated at least throughout the region. Another might be additional funding to encourage people to go to different conferences to present..."

The following quote makes a different recommendation. Here the respondent suggests that it is important that some networking be done on an intra-racial basis in order to help combat the feelings of cultural isolation:

> (Female, Hispanic, Tenured, 4 year, Social Science)
> "Formation of groups of Latino faculty. Organizations of Latino employees. Meet with others, use our own language, share experiences in the classroom. Promoting individual organizations by racial or ethnic background."

2. Mentoring:

According to a number of interviewees, designing and implementing mentoring relationship systems would help new faculty of color become acclimatized to academia and to their individual institutions. There are suggestions that structures be created that would enable department chairs and senior faculty to facilitate the success of women and minority faculty. Each of the groups had comments about mentoring as a strategy:

African Americans

> (Male, African American, Not Tenured, 4 year, Humanities)
> "Well, get mentoring. That's definite...get as much mentoring---because if you are on a tenure track position and supposedly they are hiring you with idea of tenuring you, then they should also be willing to avail you of the things that would support your packet. It's not just enough to hire them and leave it at that."

(Female, African American, Tenured, 4 year, Humanities)
"I would say, find a mentor. Another African American mentor, the person doesn't have to be in that school."

American Indians

(Male, American Indian, Tenured, 4 year, Humanities)
"...these people helped me find outlets for my publications..."

(Male, American Indian, Tenured, 4 year, Social Science)
"I particularly like the model which is used by---what is it? It's sponsored by the American Bar Association---Project CLEO, the Council for Legal Educational Opportunity in Washington, D.C. They run a summer institute which blends into a continuing mentoring relationship. A real mentoring relationship. Not this: 'Hi, let's get together, have lunch and tell me what you'd like.' It's a real, structured mentoring relationship for law students. I think that's a wonderful model."

(Female, American Indian, Not Tenured, 4 year, Social Science)
"Mentors. You know, people to tell them like _____ told me what to do. They need people like _____ that can tell new faculty or even old faculty, 'Look, we do this---try this strategy. Try this, I know what you're talking about'...To have a mentoring program and to have friends that you can discuss these things with and meet, so you can feel part of, so that you have some kind of social network. You're not there all alone. Like I don't know what I would have done if I had to come here like I did---have no friends and no family. I would not have made it."

Asians

(Female, Asian, Tenured, 4 year, Social Science)
"He is my formal mentor, but I had to seek him out...when I came in about six years ago it was not such a formal process. I had to seek him out...generally, the mentoring system, I believe, has been okay...I think what I would have liked was a more personal, social supportive mentor, so a different type of mentoring...a more personal social mentor in more of a classical, Greek sense, who is your adviser, and who helps you be safe---especially when there are these who experience both personal racism and institutional racism."

Hispanics

(Male, Hispanic, Tenured, 4 year, Social Science)
"...if you could get something that would do what my mentor did for me, that would be the exact thing, but that's a difficult thing. My mentor became very instrumental and very important in my life...he took me on as a research assistant and so I did some research for him...and then he offered me a post-doc for two years. I co-authored with him. I had a really good mentor. He got me my first position...He's the one who was looking out for me and he's the one who put me on the editorial board, he's the one who gave my name to others and they put me on editorial boards. I will always be grateful to him."

(Female, Hispanic, Not Tenured, 4 year, Social Science)
"My mentor knew that department and he knew how high they could go on salary so I negotiated up in salary and got it. I wasn't going to accept less because my mentor said not to. I was also able to negotiate staying at (former University) and completing my post-doc before accepting the position at______. My mentor had just left that department at_____. When the position became available and I interviewed---part of the motivation was to replace someone like my mentor and since I had worked with him and had similar interests in research. They

liked him and wanted someone to take his place and mentor students."

(Male, Hispanic, Tenured, 4 year, Social Science)
This faculty member describes how mentoring helped him obtain a faculty position:
"I was at a conference and right after I did my presentation, (senior faculty member) takes me aside says: Listen, how would you like it, would you consider coming (to work at________)? My experience at (that institution) was positive, very, very positive because I had a lot of support from the Dean and from (my mentors).

The following statement also indicates the importance of mentors who "keep you in the know:"

"I was in the know. The Chair of the department informed me of the possibility...(I received the post-doc.) The post-doc made me confident of my research skills and I had the freedom to establish a research agenda before embarking on an academic career. I had the opportunity to submit and receive grants so that I could hit the ground running during my academic career."

3. Support for Research and Publication

African Americans

(African American)
"So, I find myself doing research at the same time I'm going to school because I'm getting that message to that, you know, 'publish or perish,' you know, you hear it at the faculty meetings, but they say [to me] you're a new faculty, don't worry about it, but at the same time they say [to me] you'd better start worrying about it. I want to have a couple of things under my belt so when I finish the program, even though it's supposed to be tenure track, I've got a little insurance that they are going to say, 'Hey! We think we want to keep ya!' So, there is that unspoken pressure to be doing it all at the same time."

American Indians

(Male, American Indian, Tenured, 4 year, Social Science)
"We must have diversity in scholarship. Indians get censored even before we get in print. More outlets are needed to publish articles on minority concerns. An editor I know implied that research on Indians is second rate. Tribal sovereignty is not an interest of mainstream publications. But outlets to publish articles about minority concerns are growing, and growing with respect to respectability."

Asians

(Male, Asian, Tenured, 4 year, Science)
"Maybe there should be some sort of scholarly journals, publications, where minorities are expressed ---and they can take these as their academic credential...I think there should be some sort of regional goals---not any one university. I mean, in the Midwest, that they publish new scientific ideas, or what needs to be done, things like that---anything. And people express it and they say, 'Well, I published an article. I wrote.' I think that---that gives you some confidence. That's the way I have built myself, that's the way many people have built themselves."

Hispanics

(Female, Hispanic, Not Tenured, 4 year, Social Science)

"I would like to see something like the Spencer Grants for the Midwest region targeted to assist faculty members of color. I am thinking, what would help me? I need time to work on something. Time that is your own during the six year period. Buy out half-time or even a term. It is costly to implement but it would give us a leg up. This could be competitive and faculty could commit so they can't do other things. Try not to participate in other things on campus. Not increase involvement in other things. Time to focus on your own work would be extremely helpful."

Other Suggested Strategies:

The following quotes represent other suggested strategies that could also be very helpful toward the success of faculty of color:

4. Special Assistance for ABD's and Post Doctoral Fellows:

(Male, Hispanic, Tenured, 4 year, Social Science)
Bring ABD (All But Dissertation) students together and bring in researchers to help them with their research design to move those students on to graduation."

(Male, African American, Tenured, 4 year, Social Science)
"Oh, I have always thought that something we don't take enough advantage of is--that pooled resources for training would-be professors and attaching to it a period of work at one of the member institutions. That is to say, to find ways of supporting excellent students with fellowships and grants and then requiring them to do a tour of duty for some period of time at one of the institutional members...we've hardly scratched the surface in trying to do that. I think that there are lots of advantages to that."

5. Improved Spousal/Partner Support:

(Female, Hispanic, Not Tenured, 4 year, Social Science)
"I have a partner---he was not able to find a job here so we had to be apart for the first year. I was hired mid-post doc so I delayed a year. They said that they would look for a position for him (as part of my job acceptance), but still no position materialized. If you are not here actively advocating, you don't exist so the problem is not solved. There was very little done and we were preparing for a second year apart. But a position came open but it is only a three year, non-tenure track appointment...I have talked with African American women in other departments regarding the woman being hired and bringing in a man---it's a complicating factor in the process. Usually it is a man bringing in a woman so the university finds a secondary type of position for them and that's usually okay but we want to have comparable positions."

6. Improved Methods of Recruiting/Hiring, and Improving the Environment:

(Male, American Indian, Tenured, 4 year, Humanities)
This respondent states that the climate or environment issue is larger than the institution or the department:
"It's more that just the climate of the University. Climate also involves the reception among students, professional organizations, and editors of journals. One must be accepted in these arenas and at these levels too. If one does not get accepted at these levels, one does not get accepted for tenure."

> (Female, Asian, Tenured, 4 year, Social Science)
> "Well I would have a two-pronged approach. One would be---a director for multi-cultural affairs who would work with the faculty group to erase some of the baggage that we carry...and secondly, do the kind of education that is needed, which we all try to do, but also on an institutional level, that different accents really are not going to be the end-all of an undergraduate's experiences, to get hold of or be able to understand..."
>
> (Female, African American, Tenured, 4 year, Social Science)
> "There needs to be training and development related to recruiting and hiring...It's not just recruiting but the environment. No one wants to put up with all the garbage [in the environment]...The organization needs to redesign its strategic planning and begin dealing with diversity awareness training."
>
> (Male, African American, Tenured, 4 year, Social Science)
> "So...recruit the people and make them successful. If there's any failing in this, it won't be institutional, it will be the individual..."
>
> (Male, African American, Tenured, 4 year, Social Science)
> "There should be a reward system at the program level to payoff people who encourage minority faculty."

7. Early Incubation of Possible Future Faculty:

> (Male, American Indian, Tenured, 4 year, Social Science)
> "I think it's important that they, the university and the Indian faculty and the Indian tribal governments and the bureau, that they say, if you're going to create a Ph.D. that doesn't start when that person is in college. That starts when they are four. It has something to do with family environment, it has something to do with the caliber of schools that they go to. It has something to do with the kind of advisement they get...There needs to be a way of fashioning a system where there's going to be a flow of people who are going to be good enough and confident enough to aspire to get a Master's degree and get a Ph.D because that is not something that starts at the end of their bachelor's degree. It's almost too late then."

IMPLICATIONS

The pursuit of a career in academia is not easy. Their are rigorous requirements, both explicit and implicit. According to student respondents, persons of color face race/ethnic bias obstacles in Midwestern universities that are not experienced by their white colleagues.

The existence of these additional obstacles is given credibility by the fact that this view was expressed by nearly all of the respondents. Whether they are: tenured or tenure track; in the fields of science, social science, or humanities; at 2 year or 4 year institutions; similar experiences were reported. These informants can not be simply dismissed as disgruntled. It is significant that many "seasoned veterans" commented on the additional difficulties encountered by persons of color. Many women of color report that they suffer the double burden of race and gender.

It is an added burden to wonder or to know that your tenure promotion or denial is based upon your race and/or gender. The effects of being expected to work harder and to achieve at a higher level weighs heavily on the faculty person and often leads to despair and lower self-confidence. It becomes tiring for persons of color to have colleagues and students pay more attention to color than to credentials. It is no consolation to have your institution and department parade you around as if you are an example of their benevolence. If one is a member of a minority group and one seldom or never gets support or validation for research on minority issues, then not only does this devalue that research, but it can devalue feelings of self-worth thereby reducing the desire and ability to produce at the required levels. The feelings of isolation are re-enforced by the small numbers of other minorities at the institution.

Nearly all of the respondents remarked that faculty of color can not simply wait idly by for the emergence of altruism in order to improve their situations. A focused strategy of assistance is needed. It is not a matter of reducing any of the existing academic standards. None of the informants expressed a desire for special treatment. What is necessary are strategies that help to "level the playing field" and thereby neutralize some of the added burdens faced by faculty of color.

Study participants overwhelmingly suggested networking and mentoring as the two major strategies to address minority faculty recruitment and retention.

Networking is a way to deal with isolation. A number of approaches to this strategy are necessary. What must also be recognized is that each minority group has specific needs. For instance an ethnic network would allow members to relate on an academic level as well in the areas of culture and language. A network for women of color is necessary to address issues surrounding race combined with sex bias. Other networks need to address the special concerns of 2 year or 4 year institutions. The 2 year institutions have a heavy emphasis on teaching and therefore student evaluations play a major role. This means that a 2 year network would need to spend time helping faculty members in that area. Four year institutions also need to be concerned with teaching and student evaluations, but often there is more emphasis placed on research and publication.

Mentoring has been a powerful force in the lives of some of the respondents. They report that much of their success has been and is dependent upon their past and present mentor relationships. If this has been such a positive and helpful experience for some, then it seems likely that it would be positive and helpful for others. Most of the informants reported that they have had very little to no mentoring in their academic lives. Initiating an effective and meaningful mentoring program would help to alleviate some of the extra burdens faced by faculty of color. Such a program would be dependent upon making a good match between mentee and mentor as each must be able to interact with the other on many levels.

For those whose academic success depends upon research and publication, there needs to be assistance. Strategies that create greater access to publication is a must, perhaps even the creation of a scholarly journal to specifically promote the publication of research by minority faculty.

Many strategies have been suggested and several may be implemented. In many instances strategies go a long way to assist an individual as he or she struggles for success in academia. Even so one underlying factor remains. What can be done about the obstacles presented by an unwelcoming and inhospitable college climate? In this study racial/ethnic/gender bias stood out as the greatest challenge to success and well-being. Institutions must go a long way in order to transform the climate into one that encourages and nurtures all of its members. Faculty members of color have strongly reported that they are willing and ready to do what is necessary to make themselves the best that they can be. They in turn need a promise and a bona fide commitment to change on the part of the institutions.

Higher education institutions must boldly and critically examine themselves and make long overdue changes. The road to equality and justice in American society is arduous and complex. No less is true of the American academy. Each stakeholder must re-double all proactive efforts now in order to realize an equitable and just future for all.

APPENDIX C

MIDWESTERN HIGHER EDUCATION COMMISSION FACULTY DEVELOPMENT SURVEY

OVERVIEW

The Midwestern Higher Education Commission (MHEC) Faculty Development Survey was conducted as a mail survey by the Minnesota Center for Survey Research at the University of Minnesota. The project was funded jointly by the McKnight Foundation, the St. Paul Companies, and the MHEC. Questionnaires were sent to nonprofit institutions of higher education in eight midwestern states. The survey included questions about types of faculty development programs and services offered at their institution, minority faculty development funding, and funding for recruitment and retention of minority and women faculty. In addition, respondents answered questions regarding obstacles for recruitment and retention of minority, women, and nonminority faculty; numbers of faculty and administrators in specific racial/ethnic groups that have joined or left their institution in the past three years; and tenure procedures.

Mailing and data collection were conducted from July 12 to October 17, 1994. Questionnaires were completed and returned by 487 of the university/college representatives. The overall response rate was 69%.

GOALS

The main purpose of the MHEC Faculty Development Survey was to obtain information regarding faculty development policies and retention and recruitment of minority faculty. The survey was also a part of a minority faculty development planning initiative. The goal of the initiative was to identify and document the most productive strategies for increasing minority faculty in midwestern higher education. The intended outcomes were first to secure major foundation funding for exemplary programs of minority faculty development at midwestern institutions of higher education, and second, to provide benchmark information to institutions for use in crafting their own unique approaches to minority faculty development.

STUDY DESIGN AND MANAGEMENT

The MHEC Faculty Development Survey was conducted as a mail survey by the Minnesota Center for Survey Research (MCSR) at the University of Minnesota. The project was funded jointly by the McKnight Foundation, the St. Paul Companies, and the MHEC. The highest standards of quality survey research were employed in conducting this project.

The administrative coordination of the project was provided by MCSR Acting Director, Rossana Armson. Dr. Pamela Schomaker, MCSR Survey Manager, was responsible for questionnaire design, conducting the pretest, revising the survey instrument, data collection, coding and editing, and writing the methodology report. MCSR Data Manager, Lis Palmer, was responsible for ensuring data accuracy and conversion of the raw ASCII data into an SPSS system file format for analysis.

QUESTIONNAIRE DESIGN

Dr. Schomaker worked with a number of people to design the survey instrument: Melanie Hickey (MHEC), Dr. Samuel Myers (Roy Wilkins Professor of Human Relations and Social Justice, University of Minnesota), and Dr. Caroline Turner (Department of Educational Policy and Administration, University of Minnesota). Based on discussions with these people, Dr. Schomaker constructed a draft questionnaire. Following review of the survey by Ms. Hickey, Dr. Myers, and Dr. Turner, revisions were made to the instrument.

To pretest the survey, 10 members of the MHEC Minority Faculty Development Project steering committee were contacted by telephone to ask for their assistance in reviewing the questionnaire. A cover letter and survey were sent by overnight mail to the 10 members. To obtain feedback about the questionnaire, follow-up telephone calls were made to each pretest participant. Based on information received from pretest respondents, revisions were made to the questionnaire. The final survey was approved by Dr. Turner.

The survey included questions about types of faculty development programs and services offered at their institution, minority faculty development funding, and funding for recruitment and retention of minority and women faculty. In addition, respondents answered questions regarding obstacles for recruitment and retention of minority, women, and nonminority faculty; numbers of faculty and administrators in specific racial/ethnic groups that have joined or left their institution in the past three years; and tenure procedures.

SAMPLING DESIGN

Questionnaires were sent to 713 nonprofit institutions of higher education in eight midwestern states (Illinois, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin). The surveys were sent to the president of each institution who was asked to forward the survey on to the person at their institution who was responsible for faculty development.

DATA COLLECTION PROCEDURES

The procedures used by MCSR for this mail survey were based on Mail and Telephone Surveys, by Don A. Dillman. Mailing and data collection for the survey were conducted from July 12 to October 17, 1994.

Mailing Procedures

The first mailing was sent to 650 college/university presidents on July 12, with the remaining 63 (institutions in Wisconsin) sent on July 19. The initial mailing included the following: (1) a personalized cover letter printed on MHEC letterhead, (2) a survey instrument, and (3) a self-addressed, stamped return envelope.

The second mailing consisted of a reminder postcard, which was sent to the first 650 colleges/universities on July 19, and the remaining 63 survey participants on July 26. The postcard thanked individuals if they had already filled out the questionnaire, and asked them to take time to complete the survey if they had not already done so.

On August 8, a third mailing was sent to all institutions in the first group that had not returned their survey. Nonrespondents from Wisconsin were sent this mailing on August 15. Procedures for this mailing were identical to the first mailing and included a copy of the questionnaire, a reminder cover letter, and a self-addressed, stamped return envelope.

Copies of the cover letters and postcard are presented in Appendix C.

To help ensure a higher response rate, telephone follow-up was conducted from August 28 through September 30. During this time, MHEC staff contacted nonrespondents by telephone and asked them to complete and return their surveys.

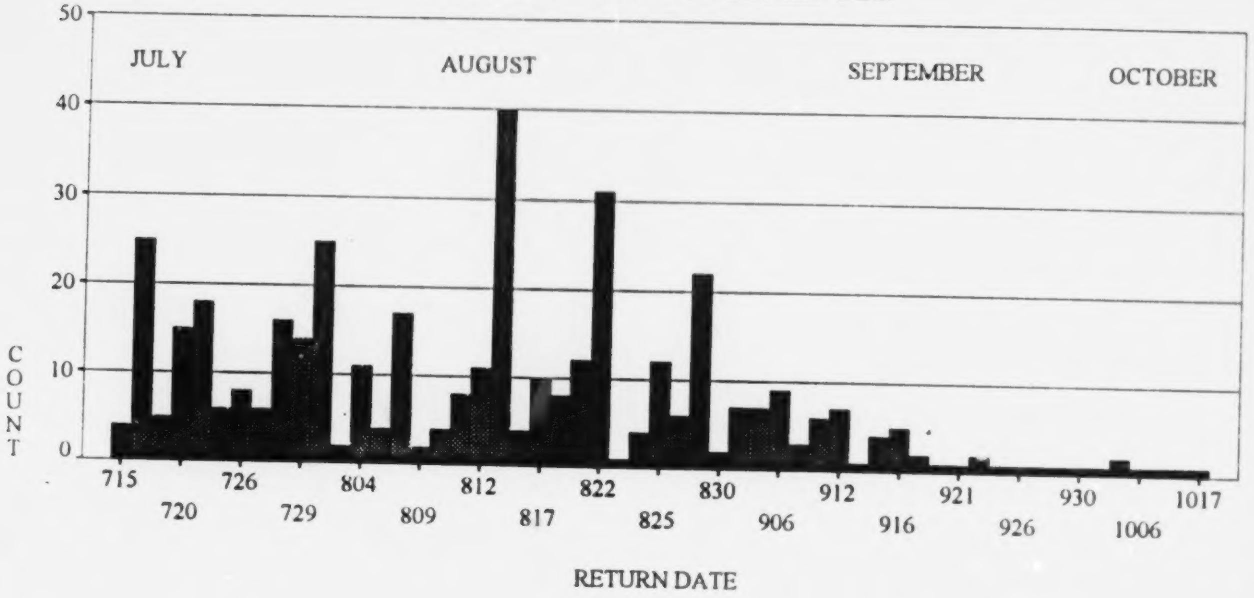
Supervision and Quality Control of the Mailings

The three mailings were completed under the supervision of MHEC and MCSR staff. Quality checks were made prior to sealing envelopes to ensure that the survey packets were complete and that the address labels and survey identification numbers matched.

Survey Returns

Returned surveys were counted to track sample status and response rate. Peak survey returns occurred within a few days after each mailing and illustrate the importance of multiple mailings to ensure a high response rate (see Figure 1 on page 4).

FIGURE 1



SURVEY RETURN SCHEDULE

MANAGEMENT OF THE DATA

Editing and Coding

Editing and coding included the completion of three major tasks. First, all surveys were checked for response clarity to eliminate dual responses when single-answer responses were sought, or to create a separate category for dual responses. Second, the coder/editor recorded responses to "other-specify" questions. Third, responses to open-ended questions were transcribed.

Editing and coding were done by a coder/editor who attended a training session to familiarize her with the survey instrument. Unclear or ambiguous responses were directed to the Survey Manager for resolution. In addition, the Survey Manager conducted quality control and reviewed coded/edited surveys throughout this phase.

Data Entry and Cleaning

After coding was completed, the questionnaires were key entered onto a data tape by a commercial data entry firm and a computer data file was prepared. Once a complete file of the questionnaire was constructed, it was examined systematically to remove data entry errors. Data cleaning involved the use of a computer program to evaluate each case for variables with out-of-range values. In addition, the file was examined manually to identify cases with paradoxical or inappropriate responses.

COMPLETION STATUS

Questionnaires were completed and returned by 487 of the university/college representatives in the sample. A total of 212 surveys were not returned. Five institutions refused to participate, 6 people indicated the survey did not pertain to their institution, and 3 representatives stated that information pertaining to their institution would be accounted for by their main campus. The overall response rate was 69%.

TABLE 1

FINAL STATUS OF THE MHEC FACULTY DEVELOPMENT SURVEY

Status	Number	Percent
Surveys returned	487	68%
Surveys not returned	212	30%
Refusals	5	1%
Eliminated: Does not apply to their school	6	1%
Results will be included in main campus survey	3	-%
TOTAL SENT:	713	100%

$$\text{RESPONSE RATE} = \frac{\text{Completed questionnaires}}{\text{Total sent - eliminated}} = 69\%$$

READING THE QUESTIONNAIRE AND RESULTS

The Questionnaire and Results section of this report contains the response frequencies and percentages for each question in the survey. The actual responses of all 487 institutional faculty development representatives who completed the survey are shown for each question. Percentage distributions also are presented; "valid" percentages were computed after eliminating those who refused to answer, did not know, or were not required to answer a particular question.

The question numbers were used as variable labels in the computer data files. This information is provided as documentation for those who wish to use a computer file and the SPSS software package to conduct more detailed data analyses.

FACULTY DEVELOPMENT SURVEY

PLEASE HAVE THE PERSON AT YOUR INSTITUTION WHO IS RESPONSIBLE FOR FACULTY DEVELOPMENT COMPLETE THIS SURVEY.

Please fill in the information requested or circle the number which corresponds to the answer closest to your opinion. All individual responses will be kept confidential. Throughout the questionnaire, please consider the term "minority faculty" to include faculty in the following ethnic groups: African American/Black, Asian, Hispanic/Latino/Chicano, and Native American/American Indian.

Q1. Which of the following best describes your institution? (*Please circle one.*)

FREQ.	(%)		
177	(36)	1.	Two-year college
179	(37)	2.	Four-year college
51	(11)	3.	University (with doctoral programs)
47	(10)	4.	A professional school (*Specify*:____________________________)
32	(7)	5.	Other (*Specify*:____________________________)
1			BLANK

Q2. Is your institution public or private? (*Please circle one.*)

FREQ.	(%)		
250	(51)	1.	Public
237	(49)	2.	Private
0			BLANK

Q3. What is the current **full-time undergraduate** student enrollment for your institution? (*Please circle one.*)

FREQ.	(%)		
168	(36)	1.	Under 1,000
134	(28)	2.	1,000 - 2,500
76	(16)	3.	Over 2,500 - 5,000
52	(11)	4.	Over 5,000 - 10,000
29	(6)	5.	Over 10,000 - 20,000
13	(3)	6.	Over 20,000
15			BLANK

Q4. Does your institution have an on-campus person or unit for the overall coordination of faculty development?

FREQ.	(%)	
258	(54)	1. Yes —>
221	(46)	2. No
8		BLANK

If yes: Please list the title(s), the number of full-time equivalent professional staff, and the date established:

Title of person or name of unit	# of FTEs	Date established
	(SEE APPENDIX B, PAGE B-5)	**(SEE APPENDIX B, PAGE B-6)**
	(SEE APPENDIX B, PAGE B-5)	**(SEE APPENDIX B, PAGE B-7)**

Q5. On your campus, which of the following best describes the person or office responsible for planning and coordinating faculty development or instructional improvement? (*Please circle one.*)

FREQ.	(%)	
8	(2)	1. President
138	(29)	2. Vice President
184	(38)	3. Academic Dean
10	(2)	4. Department chair
44	(9)	5. Faculty Committee
3	(1)	6. Academic Senate or counsel
1	(-)	7. Academic personnel office
4	(1)	8. Learning center
5	(1)	9. Program director funded by grant money
87	(18)	10. Other (*Specify*:________________)
3		BLANK

Q6. Which of the following best describes the structure of faculty development at your institution? (*Please circle one.*)

FREQ.	(%)	
227	(47)	1. Centralized (i.e., primarily coordinated by one office or unit)
223	(46)	2. Decentralized (i.e., faculty development responsibilities are widely dispersed)
32	(7)	3. Other (*Specify*:________________)
5		BLANK

Q7. In general, how would you compare your institution's current investment in faculty, instructional, and professional development to its investment three years ago? (*Please circle one.*)

FREQ.	(%)		
77	(16)	1.	Much greater now
219	(45)	2.	Somewhat greater now
158	(33)	3.	About the same as three years ago
24	(5)	4.	Somewhat less now
5	(1)	5.	Much less now
4			BLANK

Following are three questions about a variety of faculty development programs, services, and activities. For each question, please check which are offered for the groups specified. If not offered, please circle NA.

Q8. Does your institution offer faculty development **workshops or seminars** for the following:

	Tenure-Track Faculty	Nontenure-Track Faculty	Women Faculty	Minority Faculty	Not Available	
a. Developing teaching skills	333 (68)	361 (74)	262 (54)	260 (53)	62 (13)	Freq. (%)*
b. Developing research skills	110 (23)	99 (20)	87 (18)	87 (18)	232 (48)	
c. Writing for publication	74 (15)	67 (14)	65 (13)	62 (13)	254 (52)	
d. New faculty orientation	336 (69)	382 (78)	277 (57)	275 (57)	40 (8)	
e. Department faculty retreats	176 (36)	171 (35)	121 (25)	121 (25)	173 (36)	
f. All-campus faculty retreats	174 (36)	189 (39)	137 (28)	132 (27)	182 (37)	
g. Other (*Specify*: ____________	60 (12)	56 (12)	52 (11)	51 (11)	12 (3)	
____________	25 (5)	29 (6)	20 (4)	20 (4)	13 (3)	

*Respondents could indicate multiple responses, therefore percents will not sum to 100%.

Q9. Does your institution make available **funding** for the following faculty development services: (*Please check which services are available for each group.*)

	Tenure-Track Faculty	Nontenure-Track Faculty	Women Faculty	Minority Faculty	Not Applicable	
a. Faculty exchanges with business/industry	127 (26)	97 (20)	96 (20)	94 (19)	256 (53)	**Freq.** (%)*
b. Faculty exchanges with other colleges	164 (34)	98 (20)	120 (25)	117 (24)	225 (46)	
c. Faculty sabbaticals	356 (73)	143 (29)	261 (54)	255 (52)	63 (13)	
d. Travel to conferences, meetings, seminars, etc.	406 (83)	399 (82)	335 (69)	329 (68)	3 (1)	
e. Membership in professional associations	251 (52)	241 (50)	210 (43)	206 (42)	129 (27)	
f. Subscriptions to professional journals	249 (51)	240 (49)	206 (42)	201 (41)	130 (27)	
g. Faculty research	236 (49)	189 (39)	180 (37)	178 (37)	163 (34)	
h. Curriculum improvement	340 (70)	324 (67)	269 (55)	267 (55)	49 (10)	
i. Purchase of special equipment (computers, software, etc.)	351 (72)	327 (67)	279 (57)	279 (57)	43 (9)	
j. Tuition for courses taken	278 (57)	268 (55)	232 (48)	227 (47)	98 (20)	
k. Mentoring funded by outside monies	49 (10)	42 (9)	45 (9)	44 (9)	304 (62)	
l. Graduate research and/or teaching assistants	101 (21)	77 (16)	85 (18)	85 (18)	268 (55)	
m. Other (*Specify*: ____________________	21 (4)	16 (3)	14 (3)	15 (3)	13 (3)	
____________________	11 (2)	7 (1)	8 (2)	7 (1)	9 (2)	

*Respondents could indicate multiple responses, therefore percents will not sum to 100%.

Q10. Does your institution offer the following **other types of faculty development** services: (*Please check which services are available for each group.*)

	Tenure-Track Faculty	Nontenure-Track Faculty	Women Faculty	Minority Faculty	Not Applicable	
a. Special professional library	136 (28)	153 (31)	126 (26)	124 (26)	219 (45)	**Freq. (%)***
b. Release time	301 (62)	215 (44)	230 (47)	227 (47)	91 (19)	
c. Service on special task forces, panels, etc.	314 (65)	298 (61)	265 (54)	262 (54)	59 (12)	
d. Institution-wide commitment to improve instruction	345 (71)	369 (76)	292 (60)	286 (59)	35 (7)	
e. Department mentoring programs	190 (39)	182 (37)	153 (31)	152 (31)	172 (35)	
f. Campus-wide mentoring programs	135 (28)	131 (27)	109 (22)	106 (22)	230 (47)	
g. Help from external professional development consultants	180 (37)	190 (39)	143 (29)	140 (29)	181 (37)	
h. Professional or personal development plan for individual faculty members	219 (45)	206 (42)	184 (38)	177 (36)	138 (28)	
i. Annual goals setting	243 (50)	233 (48)	205 (42)	201 (41)	122 (25)	
j. Other (*Specify*: ____________	9 (2)	8 (2)	7 (1)	8 (2)	27 (6)	

*Respondents could indicate multiple responses, therefore percents will not sum to 100%.

Q11. Overall, how do you believe your institution rates in providing the following services or support for faculty? (*Please circle one response for each item.*)

	Excellent 1	Good 2	Fair 3	Poor 4	Does Not Apply 5	BLANK	
a. Understanding the needs of faculty	103 (22)	296 (62)	76 (16)	4 (1)	0 (-)	8	**FREQ.** **(%)**
b. Orientation for new faculty	115 (24)	215 (45)	124 (26)	22 (5)	4 (1)	7	
c. Securing funds for travel, professional memberships, etc.	111 (23)	181 (38)	160 (33)	28 (6)	2 (-)	5	
d. Encouraging collegiality	146 (31)	234 (49)	88 (18)	8 (2)	2 (-)	9	
e. Advocacy for faculty issues	86 (18)	284 (60)	93 (20)	9 (2)	4 (1)	11	
f. Recognizing diversity	95 (20)	224 (47)	137 (29)	23 (5)	1 (-)	7	
g. Clarifying criteria for advancement	109 (23)	217 (45)	92 (19)	24 (5)	40 (8)	5	
h. Recognition of achievements	109 (23)	240 (50)	114 (24)	17 (4)	0 (-)	7	

Q12. At your institution, what is the typical length of service for each of the following: (*Please circle one response for each item.*)

	Less Than 1 Year 1	1 - 3 Years 2	4 - 6 Years 3	7 - 10 Years 4	10 Years or More 5	Does Not Apply 6	BLANK	
a. Director of faculty development	6 (1)	51 (11)	50 (11)	24 (5)	32 (7)	284 (64)	40	**FREQ.** (%)
b. Department chairs	3 (1)	70 (15)	156 (34)	109 (24)	55 (12)	68 (15)	26	
c. Deans	5 (1)	26 (6)	157 (34)	124 (27)	117 (25)	36 (8)	22	
d. Vice Presidents	2 (-)	32 (7)	112 (25)	97 (21)	101 (22)	109 (24)	34	
e. President	1 (-)	7 (3)	46 (20)	74 (32)	93 (40)	9 (4)	257	
f. Provost	2 (1)	13 (3)	45 (11)	36 (9)	35 (9)	264 (54)	92	

Q13. Is there a special office for **minority faculty** professional development at your institution?

FREQ.	(%)		
27	(6)	1.	Yes
456	(94)	2.	No
4			BLANK

Q14. How much of a priority is retention of **minority** faculty at your institution? (*Please circle one.*)

FREQ.	(%)		
182	(39)	1.	Very high priority
177	(38)	2.	High priority
66	(14)	3.	Somewhat of a priority
43	(9)	4.	Not a priority
19			BLANK

Q15. How much of a priority is retention of **women** faculty at your institution? (*Please circle one.*)

FREQ.	(%)		
164	(35)	1.	Very high priority
200	(42)	2.	High priority
73	(15)	3.	Somewhat of a priority
36	(8)	4.	Not a priority
14			BLANK

Q16. During the next 5 years, do you think the number of minority faculty at your institution will increase, decrease, or stay the same? (*Please circle one.*)

FREQ.	(%)		
48	(10)	1.	Increase greatly
360	(75)	2.	Increase somewhat
73	(15)	3.	Stay the same
1	(-)	4.	Decrease somewhat
0	(-)	5.	Decrease greatly
5			BLANK

Q17. Does your institution participate in any collaborative efforts with other institutions with regard to minority faculty professional development?

FREQ.	(%)	
59	(12)	1. Yes ------>
419	(88)	2. No
9		BLANK

If yes: Please briefly describe these collaborative efforts:

FREQ.	(%)	
58	(98)	Comment made (SEE APPENDIX A, PAGES A-2 to A-4)
1	(2)	No comment made
428		BLANK

Q18. For your institution's total fiscal year budget, approximately what percentage is allocated for faculty professional development? (*Please circle one.*)

FREQ.	(%)		
177	(38)	1.	Less than 1 percent
188	(40)	2.	1 - 3 percent
25	(5)	3.	4 - 5 percent
8	(2)	4.	6 - 10 percent
3	(1)	5.	Over 10 percent
62	(13)	6.	Don't know
3	(1)	7.	Other (*Specify*:______________________)
21			BLANK

Q19. Approximately what percent of your institution's total faculty professional development funding is allocated to minority faculty professional development? (*Please circle one.*)

FREQ.	(%)		
182	(43)	1.	Less than 1 percent
48	(11)	2.	1 - 5 percent
19	(4)	3.	6 - 10 percent
13	(3)	4.	11 - 25 percent
3	(1)	5.	26 - 50 percent
3	(1)	6.	Over 50 percent
160	(37)	7.	Don't know
59			BLANK

Q20. For each area listed below, how would you describe funding at your institution for the past three years? (*Please circle one response for each area.*)

Funding has been....................

	Stable for Past 3 Years 1	Increasing for Past 3 Years 2	Decreasing for Past 3 Years 3	Does Not Apply 4	BLANK	
a. Professional development for all faculty	244 (51)	202 (42)	30 (6)	5 (1)	6	**FREQ.** **(%)**
b. Professional development for minority faculty	156 (33)	118 (25)	13 (3)	183 (39)	17	
c. Professional development for women faculty	163 (35)	143 (30)	16 (3)	148 (32)	17	
d. Recruitment of all faculty	231 (49)	188 (40)	29 (6)	25 (5)	14	
e. Recruitment of minority faculty	165 (35)	220 (47)	9 (2)	79 (17)	14	
f. Recruitment of women faculty	203 (43)	165 (35)	11 (2)	93 (20)	15	

Q21. Does your institution make funds available for hiring minority faculty that augment departmental budgets?

FREQ.	(%)		
80	(17)	1. Yes	**(Please continue with Q22)**
399	(84)	2. No	**(Please skip to Q27)**
8		BLANK	

Q22. How are departments within your institution informed about this funding?

FREQ.	(%)		
76	(95)	Comment made	**(SEE APPENDIX A, PAGES A-5 to A-7)**
4	(5)	No comment made	
407		BLANK	

Q23. In the past five years, how many times have departments utilized this funding?

FREQ.	(%)		
3	(4)	1.	0 times
37	(49)	2.	1 - 5 times
16	(21)	3.	6 - 10 times
7	(9)	4.	11 - 20 times
13	(17)	5.	More than 20 times
411			BLANK

Q24. How are minority faculty who are hired through use of these funds received by their colleagues in their departments? (*Please circle one.*)

FREQ.	(%)		
30	(41)	1.	Very well received
30	(41)	2.	Well received
7	(10)	3.	Received with some reservation
7	(10)	4.	Poorly received
0	(-)	5.	Colleagues do not know they are hired with special funds
413			BLANK

Q25. Are minority faculty hired with these funds given a different title than faculty hired through other means?

FREQ.	(%)			
2	(3)	1.	Yes	—> **If yes:** What title are these faculty given?
76	(97)	2.	No	______________________________
409			BLANK	

Q26. Do you feel the qualifications of minority faculty hired through this process are different than minority faculty hired through other means?

FREQ.	(%)	
7	(9)	1. Yes —>
71	(91)	2. No
409		BLANK

If yes: Please briefly describe these different qualifications:

FREQ.	(%)	
4	(57)	Comment made **(SEE APPENDIX A, PAGE A-8)**
3	(43)	No comment made
480		BLANK

Q27. How adequate do you feel the funds are at your institution for hiring minority faculty? (*Please circle one.*)

FREQ.	(%)	
86	(19)	1. Very adequate
146	(33)	2. Moderately adequate
136	(30)	3. Somewhat adequate
80	(18)	4. Not at all adequate
39		BLANK

Q28. Does your institution have a target for minority faculty hiring in the next 5 years?

FREQ.	(%)	
178	(38)	1. Yes ———>
288	(62)	2. No
21		BLANK

If yes: What is this target? (*Please circle one.*)

FREQ.	(%)	
77	(51)	1. Increase 10%
58	(38)	2. Increase 10 - 50%
11	(7)	3. Increase over 50%
6	(4)	4. Stay the same
335		BLANK

Q29. For your institution, what are the obstacles you believe exist for **recruitment** and/or **retention** of minority, women, and nonminority **Arts and Humanities** faculty? (*Please check all that apply for each category of faculty.*)

ARTS AND HUMANITIES FACULTY

	RECRUITMENT				**RETENTION**			
	Minority Faculty	**Women Faculty**	**Nonminority Faculty**		**Minority Faculty**	**Women Faculty**	**Nonminority Faculty**	
a. Undesirable geographic location	190 (39)	70 (14)	60 (12)	-->	147 (30)	59 (12)	46 (9)	**Freq. (%)***
b. Salary competition with other higher education institutions	266 (55)	187 (38)	172 (35)	-->	198 (41)	135 (28)	130 (27)	
c. Salary competition with industry	132 (27)	89 (18)	95 (20)	-->	88 (18)	69 (14)	73 (15)	
d. Lack of start-up funds or other inducements	126 (26)	79 (16)	70 (14)	-->	69 (14)	46 (9)	43 (9)	
e. Low representation (i.e., low numbers of minority faculty, students, staff)	278 (57)	59 (12)	32 (7)	-->	189 (39)	42 (9)	23 (5)	
f. Insufficient numbers of qualified candidates	280 (58)	73 (15)	33 (7)	-->	109 (22)	24 (5)	14 (3)	
g. Other (Specify: ________________	17 (4)	7 (1)	6 (1)	-->	10 (2)	7 (1)	5 (1)	
________________	3 (1)	3 (1)	2 (-)	-->	1 (-)	2 (-)	1 (-)	

*Respondents could indicate multiple responses, therefore percents will not sum to 100%.

Q30. For your institution, what are the obstacles you believe exist for **recruitment** and/or **retention** of minority, women, and nonminority **Science, Engineering, and Technology** faculty? (*Please check all that apply for each category of faculty.*)

SCIENCE, ENGINEERING, AND TECHNOLOGY FACULTY

	RECRUITMENT				**RETENTION**			
	Minority Faculty	**Women Faculty**	**Nonminority Faculty**		**Minority Faculty**	**Women Faculty**	**Nonminority Faculty**	
a. Undesirable geographic location	191 (39)	84 (17)	67 (14)	-->	138 (28)	65 (13)	45 (9)	**Freq. (%)***
b. Salary competition with other higher education institutions	272 (56)	208 (43)	185 (38)	-->	203 (42)	156 (32)	142 (29)	
c. Salary competition with industry	245 (50)	202 (42)	191 (39)	-->	174 (36)	149 (31)	149 (31)	
d. Lack of start-up funds or other inducements	129 (27)	98 (20)	88 (18)	-->	73 (15)	60 (12)	56 (12)	
e. Low representation (i.e., low numbers of minority faculty, students, staff)	273 (56)	95 (20)	35 (7)	-->	184 (38)	66 (14)	27 (6)	
f. Insufficient numbers of qualified candidates	288 (59)	142 (29)	49 (10)	-->	112 (23)	53 (11)	24 (5)	
g. Other (Specify: ________________	20 (4)	12 (3)	9 (2)	-->	8 (2)	7 (1)	6 (1)	
________________	2 (-)	2 (-)	1 (-)	-->	1 (-)	1 (-)	1 (-)	

*Respondents could indicate multiple responses, therefore percents will not sum to 100%.

Q31. For your institution, what are the obstacles you believe exist for **recruitment** and/or **retention** of minority, women, and nonminority **Social Science** faculty? *(Please check all that apply for each category of faculty.)*

SOCIAL SCIENCE FACULTY

	RECRUITMENT				**RETENTION**			
	Minority Faculty	**Women Faculty**	**Nonminority Faculty**		**Minority Faculty**	**Women Faculty**	**Nonminority Faculty**	
a. Undesirable geographic location	188 (39)	76 (16)	57 (12)	-->	140 (29)	62 (13)	42 (9)	**Freq.** **(%)***
b. Salary competition with other higher education institutions	241 (50)	172 (35)	158 (32)	-->	176 (36)	129 (27)	119 (24)	
c. Salary competition with industry	107 (22)	74 (15)	71 (15)	-->	77 (16)	60 (12)	59 (12)	
d. Lack of start-up funds or other inducements	108 (22)	68 (14)	61 (13)	-->	69 (14)	50 (10)	47 (10)	
e. Low representation (i.e., low numbers of minority faculty, students, staff)	252 (52)	58 (12)	24 (5)	-->	173 (36)	43 (9)	18 (4)	
f. Insufficient numbers of qualified candidates	236 (49)	64 (13)	28 (6)	-->	99 (20)	26 (5)	11 (2)	
g. Other (Specify: ________________	18 (4)	9 (2)	8 (2)	-->	11 (2)	10 (2)	7 (1)	
________________	5 (1)	4 (1)	3 (1)	-->	2 (-)	2 (-)	2 (-)	

*Respondents could indicate multiple responses, therefore percents will not sum to 100%.

Q32. For your institution, what are the obstacles you believe exist for **recruitment** and/or **retention** of minority, women, and nonminority **Professional and other** faculty? (*Please check all that apply for each category of faculty.*)

PROFESSIONAL AND OTHER FACULTY

	RECRUITMENT				RETENTION			
	Minority Faculty	**Women Faculty**	**Nonminority Faculty**		**Minority Faculty**	**Women Faculty**	**Nonminority Faculty**	
a. Undesirable geographic location	164 (34)	72 (15)	57 (12)	-->	124 (26)	63 (13)	47 (10)	**Freq. (%)***
b. Salary competition with other higher education institutions	241 (50)	178 (37)	170 (35)	-->	178 (37)	137 (28)	130 (27)	
c. Salary competition with industry	176 (36)	145 (30)	141 (29)	-->	129 (27)	109 (22)	108 (22)	
d. Lack of start-up funds or other inducements	108 (22)	72 (15)	62 (13)	-->	69 (14)	48 (10)	46 (9)	
e. Low representation (i.e., low numbers of minority faculty, students, staff)	233 (48)	52 (11)	21 (4)	-->	161 (33)	37 (8)	15 (3)	
f. Insufficient numbers of qualified candidates	234 (48)	74 (15)	37 (8)	-->	103 (21)	22 (5)	14 (3)	
g. Other (Specify: ____________	15 (3)	8 (2)	7 (1)	-->	11 (2)	9 (2)	9 (2)	
____________	3 (1)	3 (1)	2 (-)	-->	1 (-)	2 (-)	1 (-)	

*Respondents could indicate multiple responses, therefore percents will not sum to 100%.

Q33. At your institution, how many people of color/people from minority groups are there for the following positions: (*Please fill in the number of persons for each position or write in "0" if none.*)

(SEE APPENDIX B, PAGES B-8 TO B-9)

Number of People of Color

	Average	*n*
a. Director of Faculty Development	0.06	357
b. Department chairs	1.04	419
c. Deans	0.47	439
d. Vice Presidents	0.23	400
e. President	0.07	420
f. Provost	0.05	278

Q34. For each of the following ethnic groups, please indicate the number who joined your institution during the last 3 years. (*Please write in your best estimate for each or write in "0" if none.*)

(SEE APPENDIX B, PAGES B-10 TO B-25)

	Professor	Associate Professor	Assistant Professor	Instructor	President	Provost	Deans	Department Chairs	
a. African American/Black	0.43 (194)	0.68 (201)	1.70 (253)	1.01 (277)	0.04 (226)	0.04 (178)	0.20 (232)	0.19 (217)	**Ave.** (*n*)
b. American Indian Native American	0.01 (187)	0.07 (187)	0.25 (207)	0.23 (241)	0.01 (222)	0.01 (177)	0.04 (225)	0.02 (205)	
c. Asian/Pacific American	0.24 (187)	0.40 (188)	2.18 (243)	0.59 (264)	0.01 (220)	0.01 (174)	0.04 (221)	0.10 (202)	
d. Hispanic/Latino Chicano	0.17 (186)	0.25 (187)	0.94 (229)	0.42 (248)	0.01 (218)	0.02 (172)	0.03 (219)	0.12 (204)	
e. White/Caucasian	2.64 (210)	3.52 (219)	16.35 (285)	8.46 (327)	0.31 (233)	0.24 (173)	1.02 (255)	2.18 (218)	

Q35. For each of the following ethnic groups, please indicate the number who left your institution during the last 3 years. (*Please write in your best estimate for each or write in "0" if none.*)

(SEE APPENDIX B, PAGES B-26 to B-41)

	Professor	Associate Professor	Assistant Professor	Instructor	President	Provost	Deans	Department Chairs	
a. African American/Black	0.25 (192)	0.31 (186)	0.71 (209)	0.32 (247)	0.04 (209)	0.03 (175)	0.10 (211)	0.08 (205)	**Ave.** (*n*)
b. American Indian Native American	0.01 (183)	0.04 (180)	0.08 (184)	0.04 (223)	0.00 (207)	0.00 (172)	0.01 (208)	0.00 (197)	
c. Asian/Pacific American	0.23 (182)	0.29 (177)	0.85 (197)	0.15 (223)	0.01 (205)	0.00 (170)	0.01 (205)	0.04 (195)	
d. Hispanic/Latino Chicano	0.06 (184)	0.17 (182)	0.37 (188)	0.08 (223)	0.00 (205)	0.01 (170)	0.01 (206)	0.01 (195)	
e. White/Caucasian	6.81 (231)	4.99 (222)	7.76 (247)	5.15 (294)	0.29 (224)	0.24 (169)	0.91 (240)	1.67 (208)	

Q36. At your institution, are there professional development efforts or programs directed at **minority faculty** **retention** that you believe are "exemplary?"

FREQ.	(%)		
25	(5)	1. Yes	**(Please answer Q36a)**
436	(95)	2. No	**(Please skip to Q37)**
26		BLANK	

36a. Please use the space below to briefly describe your institution's exemplary minority retention efforts/programs. In addition, please write in the name and phone number of a person we may contact to learn more about the program.

Program description:

FREQ.	(%)		
24	(96)	Description written	**(SEE APPENDIX A, PAGES A-9 to A-11)**
1	(4)	No description written	
462		BLANK	

Contact person:

Name: ______________________ Phone: ______________

Q37. At your institution, are there professional development efforts or programs directed at **minority faculty** **recruitment** that you believe are "exemplary?"

FREQ.	(%)		
43	(10)	1. Yes	**(Please answer 37a)**
404	(90)	2. No	**(Please skip to Q38)**
40		BLANK	

37a. Please use the space below to briefly describe your institution's exemplary minority faculty recruitment efforts/programs. In addition, please write in the name and phone number of a person we may contact to learn more about the program.

Program description:

FREQ.	(%)		
41	(95)	Description written	**(SEE APPENDIX A, PAGES A-12 to A-14)**
2	(5)	No description written	
444		BLANK	

Contact person:

Name: ______________________ Phone: ______________

Q38. Which of the following best describes the person at your institution who is responsible for informing faculty about policies, practices, and processes for tenure and promotion? (*Please circle one.*)

FREQ.	(%)	
22	(5)	1. President
36	(8)	2. Provost
183	(38)	3. Vice President of Academic Affairs
45	(9)	4. Department chair
135	(28)	5. Dean
1	(-)	6. Other faculty member(s)
1	(-)	7. Faculty Mentor
54	(11)	8. Other (*Specify*:________________)
10		BLANK

Q39. How often does the person specified in Q38 meet with tenure-track faculty? (*Please circle one.*)

FREQ.	(%)	
143	(30)	1. Once per semester or quarter
80	(17)	2. Once per academic year
12	(3)	3. Once every 2 - 3 years
19	(4)	4. Does not meet with tenure-track faculty
117	(25)	5. Other (*Specify*:________________)
102	(22)	6. No tenure
14		BLANK

Q40. At your institution, who has final authority for tenure decisions? (*Please circle one.*)

FREQ.	(%)	
188	(50)	1. President
12	(3)	2. Provost
19	(5)	3. Vice President for Academic Affairs
12	(3)	4. Dean
0	(-)	5. Department Chair
25	(7)	6. Other (*Specify*:________________)
120	(32)	7. Board (Trustees, Regents, Directors, etc.)
111		BLANK

Q41. How often does the person specified in Q40 meet with tenure-track faculty? (*Please circle one.*)

FREQ.	(%)	
88	(25)	1. Once per semester or quarter
50	(14)	2. Once per academic year
8	(2)	3. Once every 2 - 3 years
133	(38)	4. Does not meet with tenure-track faculty
70	(20)	5. Other (*Specify*:________________)
138		BLANK

It also would be very helpful to receive a copy of your institution's tenure policy. If possible, could you please include a copy of this policy with your completed questionnaire.

Q42C. What other comments do you have regarding recruitment and retention of minority, women, and nonminority faculty at your institution?

FREQ.	(%)		
99	(20)	Comment made	**(SEE APPENDIX A, PAGES A-15 to A-23)**
388	(80)	No comment made	

Q42I. Additional information sent with survey:

FREQ.	(%)	
134	(28)	Additional information sent
353	(72)	No additional information sent

Thank you very much for your help with our survey!

Please return your completed survey in the enclosed postage-paid envelope to:

Minnesota Center for Survey Research
University of Minnesota
2331 University Avenue SE, #141
Minneapolis, Minnesota 55414
(612) 627-4282

APPENDIX D
TECHNICAL TABLES FROM CENSUS

The Public Use Microdata Samples (PUMS) were prepared by the Bureau of the Census using the 1990 Census of Population and Housing. PUMS contain records representing 5% or 1% samples of the housing units in the U.S. without regard to legal status or citizenship. Citizens who maintained usual residence outside the U.S. were not included. The Bureau of the Census either acquired a commercial mailing list, which is updated by the United Postal Service and the Census staff, or surveyed and listed each address in the area before Census day. All were sent the short census form containing basic demographic questions, referred to as the 100-percent questions. A sample of the population was sent the 100-percent questions with additional detailed questions such as income and occupation. Three sampling rates procedures were used to determine housing units that were to receive the long questionnaires. The enumerations were obtained from the returned self-reports.

The sampling size was based on the sampling rate of the population area. The purpose of the sampling rate was to produce more reliable estimates for smaller areas and to reduce the work of those in more densely populated areas. When sampling rates were taken into account, approximately 1 in 6 housing units was surveyed. The 5% PUMS sample includes every state and each subdivision/counties with at least 100,000 persons. The 1% sample contains the full census sample for each state for metropolitan areas. The 1% sample was selected at random from the sample size of each state.

In the MHEC project, 3% of full U.S. PUMS sample was used (0.15% which is 413,119 observations). The 1% U.S. sample used to calculate predicted wages was restricted to persons who had a masters or a PhD degree (20,195 observations), between and including ages 24-70, and who earned income in 1989. From this sample, multiple regressions were employed to predict wages that faculty might receive if they worked in different sectors of the economy. Faculty was defined as persons not enrolled in school, who reported their occupations as a post-secondary teacher, and whose industry is in a college or university. The remaining persons were grouped into the private sector or the public/non-profit sector.

TABLE D.1 FACULTY REPRESENTATION RATIOS BY STATE (EEOC & CENSUS DATA)

	Non-Hisp White	Non-Hisp Black	Hispanic	Asian	Am.Indian
Illinois	**1.17**	**0.32**	**0.21**	**2.41**	**0.94**
% of Faculty (EEOC)	87.5%	4.7%	1.6%	6.0%	0.2%
% of Pop (1990 Census)	74.9%	14.7%	7.8%	2.5%	0.2%
Kansas	**1.06**	**0.21**	**0.30**	**3.16**	**0.29**
% of Faculty (EEOC)	93.4%	1.2%	1.1%	4.0%	0.3%
% of Pop (1990 Census)	88.5%	5.7%	3.7%	1.3%	0.9%
Michigan	**1.07**	**0.35**	**0.64**	**4.97**	**0.43**
% of Faculty (EEOC)	87.9%	4.9%	1.4%	5.6%	0.3%
% of Pop (1990 Census)	82.4%	13.8%	2.1%	1.1%	0.6%
Minnesota	**0.99**	**0.49**	**1.55**	**2.22**	**0.41**
% of Faculty (EEOC)	93.4%	1.0%	1.1%	4.0%	0.5%
% of Pop (1990 Census)	94.2%	2.1%	0.7%	1.8%	1.1%
Missouri	**1.03**	**0.3**	**1.07**	**6.67**	**0.77**
% of Faculty (EEOC)	89.9%	3.2%	1.2%	5.4%	0.3%
% of Pop (1990 Census)	87.0%	10.7%	1.2%	0.8%	0.4%
Nebraska	**1.01**	**0.31**	**0.43**	**5.34**	**0.24**
% of Faculty (EEOC)	93.5%	1.1%	1.0%	4.2%	0.2%
% of Pop (1990 Census)	92.6%	3.6%	2.3%	0.8%	0.8%
Ohio	**1.03**	**0.38**	**0.86**	**6.00**	**0.69**
% of Faculty (EEOC)	89.7%	4.0%	1.1%	5.0%	0.1%
% of Pop (1990 Census)	87.1%	10.6%	1.3%	0.8%	0.2%
Wisconsin	**1.01**	**0.44**	**0.72**	**3.46**	**0.45**
% of Faculty (EEOC)	92.3%	2.2%	1.3%	3.8%	0.4%
% of Pop (1990 Census)	91.3%	4.9%	1.8%	1.1%	0.8%
Indiana	**1.01**	**0.25**	**0.67**	**8.50**	**0.71**
% of Faculty (EEOC)	90.9%	1.9%	1.2%	5.8%	0.2%
% of Pop (1990 Census)	89.6%	7.7%	1.8%	0.7%	0.2%
Iowa	**0.96**	**0.81**	**1.05**	**5.11**	**0.89**
% of Faculty (EEOC)	92.5%	1.4%	1.2%	4.7%	0.2%
% of Pop (1990 Census)	96.0%	1.7%	1.1%	0.9%	0.3%
North Dakota	**0.97**	**0.48**	**0.92**	**7.20**	**0.99**
% of Faculty (EEOC)	91.2%	0.3%	0.6%	3.9%	4.0%
% of Pop (1990 Census)	94.2%	0.5%	0.7%	0.5%	4.1%
South Dakota	**1.03**	**0.71**	**1.18**	**7.53**	**0.20**
% of Faculty (EEOC)	94.2%	0.3%	0.7%	3.4%	1.4%
% of Pop (1990 Census)	91.2%	0.5%	0.6%	0.4%	7.3%

The Faculty Representation Ratio is the percentage of total faculty accounted for by each race (from EEOC data) divided by the percentage of the population accounted for by each race (from the 1990 Census).

Source: Faculty data include full-time faculty only and are compiled by the Equal Opportunity Commission from 1991 EEO-6 Higher Education Staff Information, Table III. Population data include people of all ages and come from the U.S. Department of Commerce, Bureau of the Census, General Population Characteristics: Sex, Race, and Hispanic Origin, 1990.

TABLE D.2 DEFINITIONS OF TABLE VARIABLES
(For Table 3 to Table 16)

SOURCE OF DATA	3% of the 5% U.S. PUMS file; for individual states the full 5% was used
POPULATION	Persons between and including ages 24-70
FACULTY	Persons not enrolled in school, who reported their occupations as a post-secondary teacher, and whose industry is in a college or university
MHEC MEMBER	Eight states: Illinois, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio, Wisconsin
NON-MHEC MEMBER	MHEC eligible states: Iowa, Indiana, North Dakota, South Dakota
MIDWEST	Twelve states: MHEC and Non-MHEC states combined
U.S. TOTALS	50 states plus the District of Columbia
RACE	White, Black, Native American, Asian, and Other Race (persons who did not report self as White, Black, Native American, or Asian)
ETHNICITY	Six Race/Ethnicity categories: White Non-Hispanic, Black Non-Hispanics, Native American, Asian, Hispanic, and Other Race Non-Hispanic

TABLE D.3 FACULTY REPRESENTATION RATIOS BY RACE

	White	Black	Native Amer.	Asian	Other Race
U.S. Total	**1.10**	**0.44**	**0.57**	**1.54**	**0.17**
% Faculty	88.7	4.7	0.4	5.4	0.7
% Population	81.0	10.7	0.7	3.5	4.1
Midwest Total	**1.03**	**0.47**	**0.29**	**3.54**	**0.54**
% Faculty	90.4	4.1	0.2	4.6	0.7
% Population	87.8	8.8	0.7	1.3	1.3
MHEC Member Total	**1.03**	**0.39**	**0.50**	**3.53**	**0.53**
% Faculty	90.0	3.7	0.2	5.3	0.8
% Population	87.0	9.6	0.4	1.5	1.5
Non MHEC Total	**1.01**	**1.07**	**0.00**	**3.17**	**0.00**
% Faculty	92.0	6.1	0.0	1.9	0.0
% Population	91.4	5.7	1.6	0.6	0.6
INDIVIDUAL STATES					
Illinois	**1.08**	**0.45**	**0.00**	**2.52**	**0.15**
% Faculty	87.1	6.1	0.0	6.3	0.5
% Population	80.3	13.5	0.2	2.5	3.4
Indiana	**1.01**	**0.39**	**1.50**	**6.86**	**0.33**
% Faculty	91.9	2.8	0.3	4.8	0.2
% Population	91.3	7.1	0.2	0.7	0.6
Iowa	**0.95**	**0.36**	**0.00**	**8.88**	**0.00**
% Faculty	92.4	0.5	0.0	7.1	0.0
% Population	97.1	1.4	0.0	0.8	0.4
Kansas	**1.02**	**0.39**	**0.78**	**3.00**	**0.13**
% Faculty	93.5	2.0	0.7	3.6	0.2
% Population	91.3	5.1	0.9	1.2	1.5
Michigan	**1.05**	**0.36**	**0.83**	**5.36**	**0.13**
% Faculty	89.0	4.5	0.5	5.9	0.1
% Population	85.0	12.6	0.6	1.1	0.8
Minnesota	**0.98**	**1.06**	**0.00**	**3.77**	**0.00**
% Faculty	93.2	1.9	0.0	4.9	0.0
% Population	95.5	1.8	0.9	1.3	0.4
Missouri	**1.05**	**0.46**	**1.20**	**2.63**	**0.00**
% Faculty	92.8	4.5	0.6	2.1	0.0
% Population	88.6	9.8	0.5	0.8	0.4
Nebraska	**1.02**	**0.45**	**0.86**	**1.88**	**0.00**
% Faculty	96.4	1.5	0.6	1.5	0.0
% Population	94.3	3.3	0.7	0.8	0.9
North Dakota	**1.02**	**0.00**	**0.00**	**4.20**	0.00
% Faculty	97.9	0.0	0.0	2.1	0.0
% Population	95.7	0.5	3.1	0.5	0.2
Ohio	**1.02**	**0.40**	**1.00**	**5.75**	**0.50**
% Faculty	90.9	4.0	0.2	4.6	0.2
% Population	88.7	9.9	0.2	0.8	0.4
South Dakota	**0.98**	**0.00**	**0.57**	**14.5**	**0.00**
% Faculty	91.2	0.0	3.1	5.8	0.0
% Population	93.5	0.4	5.4	0.4	0.2
Wisconsin	**1.01**	**0.62**	**0.43**	**3.13**	**0.14**
% Faculty	94.5	2.6	0.3	2.5	0.1
% Population	93.6	4.2	0.7	0.8	0.7

Faculty representation ratio is the percentage of faculty among MA's and Ph.Ds, ages 24-70, within each race divided by the percentage of total facultty among MA's and Ph.Ds, ages 24-70.
Source: 1% PUMS 1990 Sample. MA and PhD only.

TABLE D.4 FACULTY RATIOS BY RACE/ETHNICITY

	White Non-Hispanics	African American	Native Amer.	Asian/ Pacific	Other Race Non-Hisp.	Hispanic
U.S. Total	**1.14**	**0.45**	**0.57**	**1.56**	**0.00**	**0.31**
% Faculty	86.8	4.7	0.4	5.3	0.0	2.8
% Population	76.2	10.5	0.7	3.4	0.1	9.1
Midwest Total	**1.03**	**0.47**	**0.33**	**3.31**	**0.00**	**0.96**
% Faculty	88.9	4.1	0.2	4.3	0.0	2.5
% Population	86.7	8.8	0.6	1.3	0.0	2.6
MHEC Member Total	**1.04**	**0.39**	**0.50**	**3.27**	**0.00**	**0.77**
% Faculty	88.9	3.7	0.2	4.9	0.0	2.3
% Population	85.6	9.5	0.4	1.5	0.0	3.0
Non MHEC Total	**0.98**	**1.07**	**0.00**	**3.17**	**0.00**	**3.00**
% Faculty	88.9	6.1	0.0	1.9	0.0	3.0
% Population	91.0	5.7	1.6	0.6	0.0	1.0
INDIVIDUAL STATES						
Illinois	**1.10**	**0.43**	**0.00**	**2.52**	**0.00**	**0.41**
% Faculty	85.2	5.8	0.0	6.3	0.0	2.7
% Population	77.3	13.4	0.2	2.5	0.0	6.6
Indiana	**1.00**	**0.39**	**1.50**	**6.57**	**0.00**	**0.93**
% Faculty	90.7	2.8	0.3	4.6	0.2	1.4
% Population	90.5	7.1	0.2	0.7	0.0	1.5
Iowa	**0.95**	**0.36**	**0.00**	**8.88**	**0.00**	**0.22**
% Faculty	92.1	0.5	0.0	7.1	0.0	0.2
% Population	96.6	1.4	0.3	0.8	0.0	0.9
Kansas	**1.02**	**0.40**	**0.78**	**3.00**	**0.00**	**0.60**
% Faculty	91.9	2.0	0.7	3.6	0.0	1.8
% Population	90.0	5.0	0.9	1.2	0.0	3.0
Michigan	**1.05**	**0.36**	**0.83**	**5.36**	**0.00**	**0.65**
% Faculty	88.0	4.5	0.5	5.9	0.0	1.1
% Population	84.2	12.5	0.6	1.1	0.0	1.7
Minnesota	**0.98**	**1.06**	**0.00**	**3.54**	**0.00**	**0.56**
% Faculty	93.0	1.9	0.0	4.6	0.0	0.5
% Population	95.0	1.8	0.9	1.3	0.0	0.9
Missouri	**1.05**	**0.46**	**1.20**	**2.63**	**0.00**	**0.00**
% Faculty	92.8	4.5	0.6	2.1	0.0	0.0
% Population	88.0	9.7	0.5	0.8	0.0	1.0
Nebraska	**1.03**	**0.45**	**0.86**	**1.88**	**0.00**	**0.00**
% Faculty	96.4	1.5	0.6	1.5	0.0	0.0
% Population	93.3	3.3	0.7	0.8	0.0	1.8
North Dakota	**1.03**	**0.00**	**0.00**	**4.20**	**0.00**	**0.00**
% Faculty	97.9	0.0	0.0	2.1	0.0	0.0
% Population	95.3	0.5	3.1	0.5	0.0	0.6
Ohio	**1.02**	**0.41**	**1.00**	**5.75**	**0.00**	**0.80**
% Faculty	90.3	4.0	0.2	4.6	0.0	0.8
% Population	88.1	9.8	0.2	0.8	0.0	1.0
South Dakota	**0.98**	**0.00**	**0.15**	**14.5**	**0.00**	**3.83**
% Faculty	91.2	0.0	0.8	5.8	0.0	2.3
% Population	93.3	0.4	5.3	0.4	0.0	0.6
Wisconsin	**1.00**	**0.62**	**0.43**	**3.13**	**0.00**	**1.36**
% Faculty	92.8	2.6	0.3	2.5	0.0	1.9
% Population	92.9	4.2	0.7	0.8	0.0	1.4

Faculty representation ratio is the percentage of faculty among MA's and Ph.Ds. ages 24-70, within each race divided by the percentage of faculty among MA's and Ph.Ds. ages 24-70.
Source: 1% PUMS 1990 Sample. MA and PhD only.

TABLE D.5 U.S. REPRESENTATION RATIOS BY RACE

	Representation Ratios				
	White	Black	Am.Ind.	Asian	Other Race
AGE 24-33	**1.10**	**0.31**	**2.11**	**1.86**	**0.39**
% of Faculty	85.3%	3.8%	1.9%	6.7%	2.3%
% of Total	77.4%	12.1%	0.9%	3.6%	5.9%
AGE 34-43	**1.13**	**0.51**	**0.25**	**0.83**	**0.14**
% of Faculty	90.1%	5.7%	0.2%	3.4%	0.6%
% of Total	79.7%	11.1%	0.8%	4.1%	4.3%
AGE 44-53	**1.08**	**0.49**	**0.00**	**1.58**	**0.13**
% of Faculty	88.7%	4.9%	0.0%	6.0%	0.4%
% of Total	82.2%	10.1%	0.8%	3.8%	3.2%
AGE 54-63	**1.04**	**0.40**	**1.20**	**2.67**	**0.08**
% of Faculty	88.2%	3.8%	0.6%	7.2%	0.2%
% of Total	84.7%	9.6%	0.5%	2.7%	2.5%
AGE 64-70	**1.06**	**0.52**	**0.00**	**1.25**	**0.29**
% of Faculty	92.6%	4.4%	0.0%	2.5%	0.5%
% of Total	87.3%	8.5%	0.4%	2.0%	1.7%
MALE	**1.08**	**0.50**	**0.43**	**1.74**	**0.12**
% of Faculty	88.2%	5.0%	0.3%	5.9%	0.5%
% of Total	81.5%	10.1%	0.7%	3.4%	4.3%
FEMALE	**1.12**	**0.40**	**0.75**	**1.17**	**0.21**
% of Faculty	89.9%	4.5%	0.6%	4.2%	0.8%
% of Total	80.5%	11.3%	0.8%	3.6%	3.8%
BORN IN U.S.	**1.08**	**0.44**	**0.56**	**1.14**	**0.24**
% of Faculty	94.0%	4.3%	0.5%	0.8%	0.4%
% of Total	87.0%	9.7%	0.9%	0.7%	1.7%
IMMIGRATED 1987-1990	**1.64**	**0.48**	**0.00**	**0.91**	**0.00**
% of Faculty	67.6%	2.7%	0.0%	29.7%	0.0%
% of Total	41.2%	5.6%	0.3%	32.5%	20.5%
IMMIGRATED BEFORE 1987	**1.23**	**0.59**	**0.00**	**1.32**	**0.18**
% of Faculty	63.4%	3.2%	0.0%	29.6%	3.8%
% of Total	51.4%	5.4%	0.2%	22.4%	20.6%
NOT FOREIGN BORN	**1.10**	**0.45**	**0.63**	**1.13**	**0.14**
% Faculty	93.3%	5.0%	0.5%	0.9%	0.3%
% Total	85.1%	11.2%	0.8%	0.8%	2.1%
FOREIGN BORN	**1.29**	**0.49**	**0.00**	**1.28**	**0.14**
% Faculty	62.2%	3.4%	0.0%	31.8%	2.6%
% Total	48.2%	7.0%	0.2%	24.9%	19.7%

Faculty representation ratio is the percentage of total faculty among MA's and Ph.Ds, ages 24-70, within each race divided by the percentage of total faculty among MA's and Ph.Ds, ages 24-70., in the U.S. Source: 1% PUMS 1990 Sample. MA and PhD only.

TABLE D.6 MIDWEST REPRESENTATION RATIOS BY RACE

	Representation Ratios				
	White	**Black**	**Am.Ind.**	**Asian**	**Other Race**
AGE 24-33	**1.00**	**0.31**	**0.17**	**6.47**	**0.41**
% of Faculty	86.5%	3.0%	0.1%	9.7%	0.7%
% of Total	86.4%	9.8%	0.6%	1.5%	1.7%
AGE 34-43	**1.02**	**0.52**	**0.50**	**3.57**	**0.00**
% of Faculty	89.9%	4.7%	0.3%	5.0%	0.0%
% of Total	87.8%	9.0%	0.6%	1.4%	1.2%
AGE 44-53	**1.03**	**0.45**	**0.80**	**2.85**	**0.22**
% of Faculty	92.0%	3.7%	0.4%	3.7%	0.2%
% of Total	89.0%	8.3%	0.5%	1.3%	0.9%
AGE 54-63	**1.03**	**0.39**	**0.25**	**5.43**	**0.00**
% of Faculty	92.9%	3.1%	0.1%	3.8%	0.0%
% of Total	90.3%	7.9%	0.4%	0.7%	0.6%
AGE 64-70	**1.05**	**0.22**	**1.67**	**3.80**	**0.00**
% of Faculty	96.1%	1.6%	0.5%	1.9%	0.0%
% of Total	91.6%	7.2%	0.3%	0.5%	0.4%
MALE	**1.02**	**0.37**	**0.60**	**4.67**	**0.15**
% of Faculty	90.9%	3.0%	0.3%	5.6%	0.2%
% of Total	88.9%	8.1%	0.51%	1.2%	1.3%
FEMALE	**1.04**	**0.48**	**0.60**	**2.62**	**0.10**
% of Faculty	91.7%	4.5%	0.3 %	3.4%	0.1%
% of Total	87.8%	9.4%	0.5%	3.4%	1.0%
BORN IN U.S.	**1.06**	**0.39**	**0.60**	**6.00**	**0.20**
% of Faculty	95.4%	3.5%	0.3%	0.6%	0.1%
% of Total	89.8%	9.0%	0.5%	0.1%	0.5%
IMMIGRATED 1987-90	**1.20**	**0.95**	**0.00**	**1.11**	**0.00**
% of Faculty	50.7%	3.6%	0.0	45.7%	0.0%
% of Total	42.4%	3.8%	0.2%	41.1%	12.5%
IMMIGRATED BEFORE 1987	**0.97**	**1.38**	**0.00**	**1.72**	**0.07**
% of Faculty	60.5%	4.4%	0.0%	34.1%	1.0%
% of Total	62.6%	3.2%	0.3%	19.8%	14.1%
NOT FOREIGN BORN	**1.06**	**0.39**	**0.60**	**6.00**	**0.20**
% Faculty	95.4%	3.5%	0.3%	0.6%	0.1%
% Total	89.8%	9.0%	0.5%	0.1%	0.5%
FOREIGN BORN	**0.98**	**1.30**	**0.00**	**1.61**	**0.06**
% Faculty	59.2%	4.3%	0.0%	35.6%	0.9%
% Total	60.5%	3.3%	0.3%	22.1%	13.9%

Faculty representation ratio is the percentage of faculty among MA's and Ph.Ds, ages 24-70, within each race divided by the percentage of faculty among MA's and Ph.Ds, ages 24-70, in the Midwest.
Source: 1% PUMS 1990 Sample. MA and PhD only.

TABLE D.7 MHEC REPRESENTATION RATIOS BY RACE

	Representation Ratios				
	White	Black	Am.Ind.	Asian	Other Race
AGE 24-33	**1.01**	**0.32**	**0.20**	**6.13**	**0.47**
% of Faculty	85.8%	3.4%	0.1%	9.8%	0.9%
% of Total	85.3%	10.7	0.5%	1.6%	1.9%
AGE 34-43	**1.03**	**0.50**	**0.20**	**3.44**	**0.07**
% of Faculty	89.5%	4.9%	0.1%	5.5%	0.1%
% of Total	86.8%	9.8%	0.5%	1.6%	1.4%
AGE 44-53	**1.04**	**0.45**	**1.25**	**2.71**	**0.20**
% of Faculty	91.5%	4.1%	0.5%	3.8%	0.2%
% of Total	88.8%	9.1%	0.4%	1.4%	1.0%
AGE 54-63	**1.03**	**0.41**	**0.33**	**5.38**	**0.14**
% of Faculty	91.9%	3.6%	0.1%	4.3%	0.1%
% of Total	89.3%	8.8%	0.3%	0.8%	0.7%
AGE 64-70	**1.05**	**0.23**	**2.00**	**3.33**	**0.00**
% of Faculty	95.5%	1.9%	0.6%	2.0%	0.0%
% of Total	90.7%	8.1%	0.3%	0.6%	0.4%
MALE	**1.03**	**0.37**	**0.50**	**4.62**	**0.14**
% of Faculty	90.2%	3.3%	0.2%	6.0%	0.2%
% of Total	87.9%	8.9%	0.4%	1.3%	1.4%
FEMALE	**1.05**	**0.49**	**0.75**	**2.57**	**0.18**
% of Faculty	91.0%	5.0%	0.3%	3.6%	0.2%
% of Total	86.8%	10.3%	0.4%	1.4%	1.1%
BORN IN U.S.	**1.07**	**0.39**	**0.75**	**6.00**	**0.20**
% of Faculty	95.1%	3.9%	0.3%	0.6%	0.1%
% of Total	88.9%	10.0%	0.4%	0.1%	0.5%
IMMIGRATED 1987-90	**1.16**	**0.66**	**0.00**	**1.19**	**0.00**
% of Faculty	50.4%	2.5%	0.0%	47.1%	0.0%
% of Total	43.3%	3.8%	0.2%	39.6%	13.1%
IMMIGRATED BEFORE 1987	**0.95**	**1.42**	**0.00**	**1.76**	**0.09**
% of Faculty	59.2%	4.7%	0.0%	34.9%	1.3%
% of Total	62.0%	3.3%	0.3%	19.8%	14.7%
NOT FOREIGN BORN	**1.07**	**0.39**	**0.75**	**6.00**	**0.20**
% Faculty	95.1%	3.9%	0.3%	0.6%	0.1%
% Total	88.9%	10.0%	0.4%	0.1%	0.5%
FOREIGN BORN	**0.97**	**1.33**	**0.00**	**1.67**	**0.08**
% Faculty	58.0%	4.4%	0.0%	36.5%	1.1%
% Total	60.0%	3.3%	0.3%	21.9%	14.5%

Faculty representation ratio is the percentage of faculty among MA's and Ph.Ds, ages 24-70, within each race divided by the percentage of faculty among MA's and Ph.Ds, ages 24-70., in the MHEC states. Source: 1% PUMS 1990 Sample. MA and PhD only.

TABLE D.8 NON-MHEC REPRESENTATION RATIOS BY RACE

	Representation Ratios				
	White	Black	Am.Ind.	Asian	Other Race
AGE 24-33	**0.98**	**0.21**	**0.00**	**9.40**	**0.00**
% of Faculty	89.3%	1.3%	0.0%	9.4%	0.0%
% of Total	90.8%	6.27	1.1%	1.0%	0.9%
AGE 34-43	**0.99**	**0.70**	**1.22**	**4.13**	**0.00**
% of Faculty	91.8%	3.8%	1.1%	3.3%	0.0%
% of Total	92.3%	5.4%	0.9%	0.8%	0.6%
AGE 44-53	**1.01**	**0.49**	**0.11**	**4.43**	**1.00**
% of Faculty	93.8%	2.4%	0.1%	3.1%	0.5%
% of Total	93.1%	4.9%	0.9%	0.7%	0.5%
AGE 54-63	**1.02**	**0.35**	**0.43**	**5.75**	**0.00**
% of Faculty	95.9%	1.5%	0.3%	2.3%	0.0%
% of Total	94.2%	4.3%	0.7%	0.4%	0.4%
AGE 64-70	**1.03**	**0.21**	**0.00**	**4.67**	**0.00**
% of Faculty	97.8%	0.8%	0.0%	1.4%	0.0%
% of Total	95.2%	3.8%	0.5%	0.3%	0.2%
MALE	**1.00**	**0.44**	**0.44**	**5.86**	**0.29**
% of Faculty	93.2%	2.1%	0.4%	4.1%	0.2%
% of Total	93.0%	4.84%	0.91%	0.76%	0.7%
FEMALE	**1.02**	**0.50**	**0.16**	**3.38**	**0.00**
% of Faculty	94.1%	2.8%	0.5%	2.7%	0.0%
% of Total	92.2%	5.6%	0.9%	0.8%	0.5%
BORN IN U.S.	**1.04**	**0.42**	**0.44**	**5.00**	**0.50**
% of Faculty	96.7%	2.2%	0.4%	0.5%	0.2%
% of Total	93.4%	5.3%	0.9%	0.1%	0.4%
IMMIGRATED 1987-90	**1.45**	**2.30**	**0.00**	**0.76**	**0.00**
% of Faculty	52.1%	8.5%	0.0%	39.4%	0.0%
% of Total	36.0%	3.7%	0.5%	52.1%	7.7%
IMMIGRATED BEFORE 1987	**0.98**	**1.27**	**0.00**	**1.52**	**0.00**
% of Faculty	66.3%	3.3%	0.0%	30.4%	0.0%
% of Total	67.6%	2.6%	0.3%	20.0%	9.5%
NOT FOREIGN BORN	**1.04**	**0.42**	**0.44**	**5.00**	**0.50**
% Faculty	96.7%	2.2%	0.4%	0.5%	0.2%
% Total	93.4%	5.30%	0.9%	0.1%	0.4%
FOREIGN BORN	**1.01**	**1.39**	**0.00**	**1.33**	**0.00**
% of Faculty	64.5%	3.9%	0.0%	31.6%	0.0%
% Total	63.9%	2.8%	0.3%	23.7%	9.3%

Faculty representation ratio is the percentage of faculty among MA's and Ph.Ds, ages 24-70, within each race divided by the percentage of faculty among MA's and Ph.Ds, ages 24-70., in the Non-MHEC states. Source: 1% PUMS 1990 Sample. MA and PhD only.

TABLE D.9 U.S. FACULTY REPRESENTATION RATIOS BY ETHNICITY

	Representation Ratios					
	White	Black	Am. Indian	Asian	Other Non-His.	Hispanic
AGE 24-33	**1.11**	**0.32**	**2.38**	**1.86**	**0.00**	**0.72**
% of Faculty	78.8%	3.8%	1.9%	6.7%	0.00%	8.8%
% of Total	71.4%	11.9%	0.8%	3.6%	0.1%	12.3%
AGE 34-43	**1.18**	**0.53**	**0.29**	**0.85**	**0.00**	**0.20**
% of Faculty	88.9%	5.7%	0.2%	3.4%	0.0%	1.8%
% of Total	75.2%	10.8%	0.7%	4.0%	0.1%	9.2%
AGE 44-53	**1.12**	**0.49**	**0.00**	**1.67**	**0.00**	**0.21**
% of Faculty	87.5%	4.9%	0.0%	6.0%	0.0%	1.6%
% of Total	78.0%	9.9%	0.7%	3.6%	0.1%	7.6%
AGE 54-63	**1.07**	**0.40**	**1.20**	**2.56**	**0.00**	**0.32**
% of Faculty	86.4%	3.8%	0.6%	6.9%	0.0%	2.2%
% of Total	80.6%	9.4%	0.5%	2.7%	0.0%	6.8%
AGE 64-70	**1.09**	**0.52**	**0.00**	**1.25**	**0.00**	**0.27**
% of Faculty	91.8%	4.4%	0.0%	2.5%	0.0%	1.3%
% of Total	84.2%	8.4%	0.4%	2.0%	0.1%	4.9%
MALE	**1.13**	**0.51**	**0.43**	**1.79**	**0.00**	**0.24**
% of Faculty	86.4%	5.0%	0.3%	5.9%	0.0%	2.3%
% of Total	76.6%	9.9%	0.7%	3.3%	0.1%	9.4%
FEMALE	**1.16**	**0.40**	**0.86**	**1.17**	**0.00**	**0.36**
% of Faculty	87.8%	4.5%	0.6%	4.1%	0.0%	3.1%
% of Total	75.8%	11.2%	0.7%	3.5%	0.1%	8.7%
IMMIGRATED 1987-1990	**2.90**	**0.57**	**0.00**	**0.92**	**0.00**	**0.25**
% of Faculty	56.8%	2.7%	0.0%	29.7%	0.0%	10.8%
% of Total	19.6%	4.7%	0.2%	32.2%	0.2%	43.1%
IMMIGRATED BEFORE 1987	**1.84**	**0.71**	**0.00**	**1.32**	**0.00**	**0.26**
% of Faculty	57.0%	3.2%	0.0%	29.0%	0.0%	10.8%
% of Total	30.9%	4.5%	0.2%	21.9%	0.2%	42.3%
NOT FOREIGN BORN	**1.12**	**0.45**	**0.63**	**1.00**	**0.00**	**0.26**
% Faculty	92.5%	5.0%	0.5%	0.8%	0.0%	1.3%
% Total	82.3%	11.1%	0.8%	0.8%	0.0%	5.0%
FOREIGN BORN	**1.90**	**0.57**	**0.00**	**1.30**	**0.00**	**0.28**
% Faculty	53.5%	3.4%	0.0%	31.8%	0.0%	11.3%
% Total	28.2%	6.0%	0.1%	24.4%	0.3%	41.0%

Faculty representation ratio is the percentage of total faculty among MA's and Ph.Ds, ages 24-70, within each race divided by the percentage of total faculty among MA's and Ph.Ds, ages 24-70., in the U.S.

Source: 1% PUMS 1990 Sample. MA and PhD only.

TABLE D.10 MIDWEST FACULTY REPRESENTATION RATIOS BY ETHNICITY

	Representation Ratios					
	White Non-Hisp.	Black Non-Hisp.	Am. Indian NonHis	Asian Non-Hisp.	Other Race NonHis.	Hispanic
AGE 24-33	**1.00**	**0.31**	**0.17**	**6.47**	**0.00**	**0.61**
% of Faculty	85.2%	3.0%	0.1%	9.7%	0.0%	2.0%
% of Total	84.9%	9.7%	0.6%	1.5%	0.0%	3.3%
AGE 34-43	**1.02**	**0.51**	**0.33**	**3.57**	**0.00**	**0.64**
% of Faculty	88.7%	4.5%	0.2%	5.0%	0.0%	1.6%
% of Total	86.6%	8.9%	0.6%	1.4%	0.0%	2.5%
AGE 44-53	**1.04**	**0.45**	**0.80**	**3.08**	**0.00**	**0.45**
% of Faculty	91.3%	3.7%	0.4%	3.7%	0.1%	0.9%
% of Total	88.0%	8.3%	0.5%	1.2%	0.0%	2.0%
AGE 54-63	**1.03**	**0.39**	**0.25**	**5.14**	**0.00**	**0.56**
% of Faculty	92.2%	3.1%	0.1%	3.6%	0.0%	0.9%
% of Total	89.4%	7.9%	0.4%	0.7%	0.0%	1.6%
AGE 64-70	**1.05**	**0.19**	**1.67**	**3.80**	**0.00**	**1.10**
% of Faculty	95.1%	1.4%	0.5%	1.9%	0.0%	1.1%
% of Total	91.0%	7.2%	0.3%	0.5%	0.0%	1.0%
MALE	**1.03**	**0.37**	**0.40**	**4.67**	**0.00**	**0.48**
% of Faculty	90.0%	3.0%	0.2%	5.6%	0.0%	1.2%
% of Total	87.7%	8.1%	0.5%	1.2%	0.0%	2.5%
FEMALE	**1.04**	**0.47**	**0.60**	**2.75**	**0.0**	**0.64**
% of Faculty	90.5%	4.4%	0.3.	3.3%	0.0%	1.4%
% of Total	86.8%	9.3%	0.5%	1.2%	0.0%	2.2%
BORN IN U.S.	**1.07**	**0.39**	**0.60**	**6.00**	**0.00**	**0.55**
% of Faculty	95.0%	3.5%	0.3%	0.6%	0.0%	0.6%
% of Total	89.2%	9.0%	0.5%	0.1%	0.0%	1.1%
IMMIGRATED 1987-90	**1.36**	**1.00**	**0.00**	**1.12**	**0.00**	**0.26**
% of Faculty	45.0%	3.6%	0.0	45.7%	0.0%	5.7%
% of Total	33.2%	3.6%	0.2%	40.9%	0.3%	21.9%
IMMIGRATED BEFORE 1987	**1.07**	**1.50**	**0.00**	**1.74**	**0.00**	**0.26**
% of Faculty	55.3%	4.2%	0.0%	33.7%	0.0%	6.8%
% of Total	51.7%	2.8%	0.2%	19.4%	0.1%	25.7%
NOT FOREIGN BORN	**1.07**	**0.39**	**0.60**	**6.00**	**0.00**	**0.55**
% Faculty	95.0%	3.5%	0.3%	0.6%	0.0%	0.6%
% Total	89.2%	9.0%	0.5%	0.1%	0.0%	1.1%
FOREIGN BORN	**1.08**	**1.45**	**0.00**	**1.63**	**0.00**	**0.26**
% Faculty	53.9%	4.2%	0.0%	35.3%	0.0%	6.6%
% Total	49.8%	2.9%	0.2%	21.7%	0.1%	25.3%

Faculty representation ratio is the percentage of faculty among MA's and Ph.Ds, ages 24-70, within each race divided by the percentage of faculty among MA's and Ph.Ds, ages 24-70., in the Midwest.
Source: 1% PUMS 1990 Sample. MA and PhD only.

TABLE D.11 MHEC FACULTY REPRESENTATION RATIOS BY ETHNICITY

	Representation Ratios					
	White Non-Hispanic	Black Non-Hispanic	Am.Ind. Non-Hispanic	Asian Non-Hispanic	Other Race NonHisp	Hispanic
AGE 24-33	**1.01**	**0.32**	**0.20**	**6.12**	**0.00**	**0.57**
% of Faculty	84.6%	3.4%	0.1%	9.8%	0.0%	2.1%
% of Total	83.6%	10.6	0.5%	1.6%	0.0%	3.7%
AGE 34-43	**1.03**	**0.48**	**0.20**	**3.67**	**0.00**	**0.54**
% of Faculty	88.2%	4.7%	0.1%	5.5%	0.0%	1.5%
% of Total	85.4%	9.8%	0.5%	1.5%	0.0%	2.8%
AGE 44-53	**1.05**	**0.45**	**1.25**	**2.71**	**0.00**	**0.36**
% of Faculty	90.9%	4.1%	0.5%	3.8%	0.0%	0.8%
% of Total	86.9%	9.1%	0.4%	1.4%	0.0%	2.2%
AGE 54-63	**1.04**	**0.41**	**0.33**	**5.00**	**0.00**	**0.41**
% of Faculty	91.6%	3.6%	0.1%	4.0%	0.0%	0.7%
% of Total	88.4%	8.8%	0.3%	0.8%	0.0%	1.7%
AGE 64-70	**1.05**	**0.20**	**2.00**	**3.33**	**0.00**	**1.36**
% of Faculty	94.2%	1.6%	0.6%	2.0%	0.0%	1.5%
% of Total	90.0%	8.0%	0.3%	0.6%	0.0%	1.1%
MALE	**1.03**	**0.37**	**0.50**	**4.62**	**0.00**	**0.36**
% of Faculty	89.5%	3.3%	0.2%	6.0%	0.0%	1.0%
% of Total	86.6%	8.9%	0.4%	1.3%	0.0%	2.8%
FEMALE	**1.05**	**0.48**	**0.75**	**2.69**	**0.00**	**0.63**
% of Faculty	89.9%	4.9%	0.3%	3.5%	0.0%	1.5%
% of Total	85.6%	10.2%	0.4%	1.3%	0.0%	2.4%
BORN IN U.S.	**1.07**	**0.39**	**0.75**	**6.00**	**0.00**	**0.42**
% of Faculty	94.7%	3.9%	0.3%	0.6%	0.0%	0.5%
% of Total	88.3%	9.9%	0.4%	0.1%	0.0%	1.2%
IMMIGRATED 1987-90	**1.29**	**0.69**	**0.00**	**1.20**	**0.00**	**0.30**
% of Faculty	43.6%	2.5%	0.0%	47.1%	0.0%	6.9%
% of Total	33.8%	3.6%	0.1%	39.3%	0.2%	23.0%
IMMIGRATED BEFORE 1987	**1.08**	**1.55**	**0.00**	**1.77**	**0.00**	**0.23**
% of Faculty	54.9%	4.5%	0.0%	34.4%	0.0%	6.2%
% of Total	50.8%	2.9%	0.2%	19.4%	0.1%	26.6%
NOT FOREIGN BORN	**1.07**	**0.39**	**0.75**	**6.00**	**0.00**	**0.42**
% Faculty	94.7%	3.9%	0.3%	0.6%	0.0%	0.5%
% Total	88.3%	9.9%	0.4%	0.1%	0.0%	1.2%
FOREIGN BORN	**1.09**	**1.45**	**0.00**	**1.68**	**0.00**	**0.24**
% of Faculty	53.4%	4.2%	0.0%	36.1%	0.0%	6.3%
% Total	49.0%	3.0%	0.2%	21.5%	0.1%	26.2%

Faculty representation ratio is the percentage of faculty among MA's and Ph.Ds, ages 24-70, within each race divided by the percentage of faculty among MA's and Ph.Ds, ages 24-70., in the MHEC states.
Source: 1% PUMS 1990 Sample. MA and PhD only.

TABLE D.12. NON-MHEC FACULTY REPRESENTATION RATIOS BY ETHNICITY

	Representation Ratios					
	White Non-Hisp.	Black Non-Hisp.	Am.Ind. Non-Hisp.	Asian Non-Hisp.	Other Race NonHis	Hispanic
AGE 24-33	**0.98**	**0.21**	**0.00**	**9.40**	**0.00**	**0.84**
% of Faculty	87.7%	1.3%	0.0%	9.4%	0.0%	1.6%
% of Total	89.9%	6.1%	1.0%	1.0%	0.0%	1.9%
AGE 34-43	**0.99**	**0.70**	**0.78**	**3.75**	**0.00**	**1.50**
% of Faculty	90.3%	3.8%	0.7%	3.0%	0.0%	2.1%
% of Total	91.5%	5.4%	0.9%	0.8%	0.0%	1.4%
AGE 44-53	**1.00**	**0.49**	**0.13**	**4.43**	**0.00**	**1.18**
% of Faculty	92.8%	2.4%	0.1%	3.1%	0.2%	1.3%
% of Total	92.5%	4.9%	0.8%	0.7%	0.0%	1.1%
AGE 54-63	**1.01**	**0.35**	**0.43**	**5.75**	**0.00**	**1.80**
% of Faculty	94.1%	1.5%	0.3%	2.3%	0.0%	1.8%
% of Total	93.6%	4.3%	0.7%	0.4%	0.0%	1.0%
AGE 64-70	**1.03**	**0.21**	**0.00**	**4.67**	**0.00**	**0.00**
% of Faculty	97.8%	0.8%	0.0%	1.4%	0.0%	0.0%
% of Total	94.8%	3.8%	0.5%	0.3%	0.0%	0.6%
MALE	**1.00**	**0.44**	**0.25**	**5.71**	**0.00**	**1.13**
% of Faculty	91.9%	2.1%	0.2%	4.0%	0.1%	1.7%
% of Total	92.2%	4.8%	0.8%	0.7%	0.0%	1.5%
FEMALE	**1.01**	**0.51**	**0.56**	**3.38**	**0.00**	**1.00**
% of Faculty	92.8%	2.8%	0.5%	2.7%	0.0%	1.2%
% of Total	91.6%	5.5%	0.9%	0.8%	0.0%	1.2%
BORN IN U.S.	**1.03**	**0.42**	**0.33**	**4.00**	**0.00**	**0.89**
% of Faculty	96.1%	2.2%	0.3%	0.4%	0.1%	0.8%
% of Total	92.9%	5.3%	0.9%	0.1%	0.0%	0.9%
IMMIGRATED 1987-90	**1.80**	**2.30**	**0.00**	**0.76**	**0.00**	**0.00**
% of Faculty	52.1%	8.5%	0.0%	39.4%	0.0%	0.0%
% of Total	28.9%	3.7%	0.4%	52.1%	1.0%	14.0%
IMMIGRATED BEFORE 1987	**0.96**	**1.43**	**0.00**	**1.55**	**0.00**	**0.50**
% of Faculty	57.1%	3.3%	0.0%	30.4%	0.0%	9.2%
% of Total	59.3%	2.3%	0.2%	19.6%	0.1%	18.4%
NOT FOREIGN BORN	**1.03**	**0.42**	**0.33**	**4.00**	**0.00**	**0.89**
% Faculty	96.1%	2.2%	0.3%	0.4%	0.1%	0.8%
% Total	92.9%	5.3%	0.9%	0.1%	0.0%	0.9%
FOREIGN BORN	**1.01**	**1.56**	**0.00**	**1.35**	**0.00**	**0.45**
% Faculty	56.4%	3.9%	0.0%	31.6%	0.0%	8.0%
% Total	55.7%	2.5%	0.3%	23.4%	0.2%	17.8%

Faculty representation ratio is the percentage of faculty among MA's and Ph.Ds, ages 24-70, within each race divided by the percentage of faculty among MA's and Ph.Ds, ages 24-70., in Non-MHEC states.
Source: 1% PUMS 1990 Sample. MA and PhD only.

TABLE D.13 COMPARISON OF MIDWEST vs. U.S REPRESENTATION RATIOS BY RACE

	Percent Difference of Representation Ratios				
	White	Black	Am. Indian	Asian	Other Race
AGE 24-33	-9.1%	-0.0%	-91.9%	247.9%	5.1%
AGE 34-43	-9.7%	2.0%	100.0%	330.1%	-100.0%
AGE 44-53	-4.6%	-8.2%	0.0%	80.4%	69.2%
AGE 54-63	-1.0%	2.5%	-79.2%	103.4%	100.0%
AGE 64-70	-0.9%	-57.7%	0.0%	204.0%	-100.0%
MALE	-5.6%	-26.0%	39.5%	168.4%	25.0%
FEMALE	-7.1%	20.0%	20.0%	123.9%	-53.4%
BORN IN U.S.	-1.9%	-11.4%	7.1%	426.3%	-16.7%
IMMIGRATED 1987-90	-26.8%	97.9%	0.0%	22.0%	0.0%
IMMIGRATED BEFORE 1987	-26.0%	-133.9%	0.0%	30.3%	-61.0%
NOT FOREIGN BORN	-3.6%	-13.3%	-4.8%	431.0%	42.9%
FOREIGN BORN	-31.0%	171.4%	0.0%	25.8%	-57.1%

Faculty representation ratio is the percentage of faculty among MA's and Ph.Ds, ages 24-70, within each race divided by the percentage of faculty among MA's and Ph.Ds, ages 24-70, in the Midwest and the whole U.S.

Percent Difference of Representation Ratios is computed as: (difference between the Midwest and U.S. representation ratios) divided by (whole U.S.).

Derived from Table 5 and Table 6.

Source: 1% PUMS 1990 Sample. MA and PhD only.

TABLE D.14 COMPARISON OF MHEC VS. U.S. REPRESENTATION RATIOS BY RACE

	White	Black	Am. Indian	Asian	Other Race
AGE 24-33	-8.2%	3.2%	-90.5%	229.6%	20.5%
AGE 34-43	-8.9%	-2.0%	-20.0%	314.5%	-50.0%
AGE 44-53	-3.7%	-8.2%	0.0%	71.5%	53.9%
AGE 54-63	-1.0%	2.5%	-72.5%	101.5%	75.0%
AGE 64-70	-0.9%	-55.8%	0.0%	166.4%	-100.0%
MALE	-4.6%	-26.0%	16.3%	165.5%	16.7%
FEMALE	-6.3%	22.5%	0.0%	119.7%	-14.3%
BORN IN U.S.	-0.9%	-11.4%	33.9%	426.3%	-16.7%
IMMIGRATED 1987-90	-29.3%	37.5%	0.0%	30.8%	0.0%
IMMIGRATED BEFORE 1987	-22.8%	140.7%	0.0%	33.3%	-50.0%
NOT FOREIGN BORN	-2.7%	-13.3%	19.1%	431.0%	42.9%
FOREIGN BORN	-24.8%	171.4%	0.0%	30.5%	-57.1%

Faculty representation ratio is the percentage of faculty among MA's and Ph.Ds, ages 24-70, within each race divided by the percentage of faculty among MA's and Ph.Ds, ages 24-70, in the MHEC states and the U.S.

Percent Difference of Representation Ratios is computed as: (difference between the Midwest and U.S. representation ratios) divided by (whole U.S.).

Derived from Table 5 and Table 7.

Source: 1% PUMS 1990 Sample. MA and PhD only.

TABLE D.15 COMPARISON OF MHEC VS. U.S. REPRESENTATION RATIOS

	White	Black	Am. Indian	Asian	Hispanic
AGE 24-33	-9.0%	0.0%	-91.6%	229.0%	-20.8%
AGE 34-43	-12.7%	-9.4%	-31.0%	331.8%	170.0%
AGE 44-53	-6.3%	-8.2%	0.0%	62.3%	71.4%
AGE 54-6-3	-2.8%	2.5%	-72.5%	95.3%	28.1%
AGE 64-70	-3.7%	-57.7%	0.0%	166.4%	403.7%
MALE	-8.9%	-27.5%	16.3%	158.1%	50.0%
FEMALE	-9.5%	20.0%	-12.8%	129.9%	75.0%
IMMIGRATED 1987-90	-55.5%	21.1%	0.0%	30.4%	20.0%
IMMIGRATED BEFORE 1987	-41.3%	118.3%	0.0%	34.1%	-11.5%
NOT FOREIGN BORN	-4.5%	-13.3%	19.1%	500.0%	61.5%
FOREIGN BORN	-42.6%	154.4%	0.0%	29.2%	-14.3%

Faculty representation ratio is the percentage of faculty among MA's and Ph.Ds, ages 24-70, within each race divided by the percentage of faculty among MA's and Ph.Ds, ages 24-70, in the MHEC states and the U.S. population.

Percent Difference of Representation Ratios is computed as: (difference between the Midwest and U.S. representation ratios) divided by (whole U.S.).

Derived from Table 9 and Table 11.

Source: 1% PUMS 1990 Sample. MA and PhD only.

TABLE D.16 COMPARISON OF MIDWEST VS. U.S. REPRESENTATION RATIOS BY RACE

	White	Black	Am. Indian	Asian	Other Race	Hispanic
AGE 24-33	-9.9%	-3.1%	-92.9%	247.9%	0.0%	15.3%
AGE 34-43	-13.6%	-3.8%	13.8%	320.0%	0.0%	220.0%
AGE 44-53	-7.1%	-8.2%	0.0%	84.4%	0.0%	114.3%
AGE 54-63	-3.7%	-2.5%	-79.2%	100.8%	0.0%	75.0%
AGE 64-70	-3.7%	-63.5%	0.0%	204.0%	0.0%	307.4%
MALE	-8.9%	-27.5%	-7.0%	160.9%	0.0%	100.0%
FEMALE	-10.3%	17.5%	-30.2%	135.0%	0.0%	77.8%
IMMIGRATED 1987-90	-53.1%	75.4%	0.0%	21.7%	0.0%	4.0%
IMMIGRATED BEFORE 1987	-41.9%	111.3%	0.0%	31.8%	0.0%	0.0%
NOT FOREIGN BORN	-4.5%	-13.3%	-4.8%	500.0%	0.0%	111.5%
FOREIGN BORN	-43.2%	154.4%	0.0%	25.4%	0.0%	-7.1%

Faculty representation ratio is the percentage of faculty among MA's and Ph.Ds, ages 24-70, within each race divided by the percentage of faculty among MA's and Ph.Ds, ages 24-70, in the Midwest and the U.S. population.

Percent Difference of Representation Ratios is computed as: (difference between the Midwest and U.S. representation ratios) divided by (whole U.S.).
Derived from Table 9 and Table 10.

Source: 1% PUMS 1990 Sample. MA and Ph.D. only.

TABLE D.17 DEFINITIONS OF REGRESSION VARIABLES
(For Table18 to Table 24)

SOURCE OF DATA	3% of the 5% U.S. PUMS file; full 5% for individual states
POPULATION	Limited to persons between and including ages 24-70 in 1989 with Masters or Ph.D. degree, and earned income in 1989
FACULTY	Persons not enrolled in school, who reported their occupations as a post-secondary teacher, and whose industry is in a college or university
PREDICTED WAGE	Multiple regressions used to predict wages that faculty might have received if they worked in different sectors of the economy. All workers with MA/PhD degrees divided into three groups: 1. Worked in private sector 2. Worked in Public/Non-Public sector 3. Faculty members White and Non-Hispanic predicted wages were based solely on actual coefficients. The U.S. total, White, and Non-Hispanic variables were calculated for all workers in the sample. Black and Asian variables were calculated only for workers in those racial groups.
AGE	Person's age
COMBINATION OF SEX AND MARITAL STATUS	1. Bachelor: single men 2. Single F: single women 3. Wife: married women (4. Married men - not coded)
REGION OF COUNTRY	Based on four regions in Census Bureau 1. West 2. MWest: Mid central states 3. East: Northeast 4. South (Not coded)
WEEK '89	Number of weeks person worked in 1989
LANGI	Language spoken at home - English/Not English
OVER 60	Any person(s) 60 years old or over who lived in household
R-18 UNDER	Any person(s) under 18 years old who lived in household
PHD	Had Ph.D.
IMMIGRATION	1. Pre-1986: immigrated before 1987 2. Post-1986: immigrated after 1987

TABLE D.18 MAXIMUM LIKELIHOOD ESTIMATES IN LOGISTIC MODEL OF FACULTY PROBABILITY (MASTER'S/PH.D. 1% PUMS U.S. SAMPLE)

(t-statistic in parenthesis)

	Total	White	Blacks	Indian**	Asian	Hispanic**
Constant	-2.2255 (6.0303)	-1.5591 (-5.3707)	-11.1996 (-8.5867)	61.6844 (4.7156)	-5.5822 (-4.5446)	8.8296 (3.9503)
Age	0.0398 (6.0303)	0.0375 (5.2817)	0.1280 (3.4225)	-2.4341 (-5.8724)	0.0221 (0.7727)	-.0365 (-6.2424)
Age squared	-0.0002 (-2.8571)	-0.0001 (-1.3184)	-0.0010 (-2.5000)	0.0259 (5.7556)	0.0000 (0.1183)	0.0037 (6.1667)
Sex	0.1219 (6.5187)	0.1930 (9.6020)	-0.4608 (-5.6401)	-7.2633 (-5.6572)	-0.3126 (-3.3868)	-0.8611 (-5.8380)
Persons under 18 in household	0.0511 (3.1350)	0.0357 (2.0284)	0.5836 (7.5694)	6.9909 (5.1268)	-0.0722 (-0.9863)	0.2031 (1.7524)
Persons over 60 in household	0.0273 (0.9750)	0.0071 (0.2305)	0.0101 (0.0758)	2.8644 (4.9065)	0.6323 (6.7698)	-3.0812 (-10.3327)
Other language spoken in home	-0.2717 (-10.3702)	-0.2955 (-9.2344)	0.1726 (1.4714)	-4.5167 (4.7917)	0.4158 (4.3768)	-0.5499 (-4.4240)
Unmarried female w/children under 18	-0.4324 (-7.6396)	-0.2474 (-3.9458)	-0.1942 (-1.3211)	-12.4598 (-0.4588)	-5.1347 (-1.8802)	-6.8344 (-1.6023)
Immigrated before 1987	-0.1166 (-4.2711)	0.0044 (0.1354)	-0.3109 (-2.7248)	n/a	-0.8584 (-7.1474)	0.0915 (0.6224)
Immigrrated after 1987	0.3309 (0.5170)	0.3576 (4.8194)	2.8491 (8.1055)	1.2793 (0.0216)	-0.1494 (-0.6349)	.8902 (2.3809)
PhD	2.5151 (66.7135)	2.5557 (62.1825)	2.1090 (12.2119)	2.8629 (1.0381)	1.9581 (11.3711)	3.2721 (11.0919)
Predicted faculty wage	0.2401 (2.4575)	0.1310 (1.2300)	1.1496 (2.6910)	15.0827 (3.3432)	1.6939 (3.7212)	0.8504 (1.0411)
Predicted private wage	-0.5128 (-7.3153)	-0.4651 (-6.0797)	-0.7822 (-2.5529)	-16.1581 (-4.7304)	-1.5685 (-4.7201)	-1.5533 (-2.6001)
N.Central/Midwest				-16.2842 (-1.0884)		2.1324 (10.8519)
East Region						0.4965 (2.5646)
West Region						0.5682 (3.2487)
Probability(P)	0.0588	0.0615	0.0423	0.0510	0.0487	0.0408
Representation ratio		1.0471	0.7199	0.8685	0.8294	0.6944
Chi-square	34914.106	29982.329	1979.501	393.675	2459.688	1392.406
%corr. classified	94.06	93.75	95.89	97.26	95.18	95.9
No.obser.(weighted)	421,542	352,581	27,709	1,607	26,737	12,717
No.obser(unweighted)	20,195	17,209	1,143	80	1,195	562

Probability (P) is the conditional probability that a person with a Master's/Ph.D.is a faculty member.

Source: 1% PUMS sample restricted to persons with a masters or PhD, age 24-70, and who earned income in 1989.

** For Indians and Hispanics, regional dummy variables were used in regression.

TABLE D.19 MAXIMUM LIKELIHOOD COEFFICIENTS IN LOGISTIC MODEL OF FACULTY PROBABILITIES (MASTER'S/PH.D.S 1% MHEC SUBSAMPLE)

(t-statistic in parenthesis)

	Total	White	Nonwhites
Age	0.0403 (6.1061)	-0.0682 (-3.9195)	-0.2899 (-115.9600)
Age squared	-0.0002 (-2.8571)	0.0009 (4.5000)	0.0025 (3.5714)
Sex	0.1278 (6.8342)	0.1398 (1.4794)	-0.6392 (-2.7062)
Persons under 18 in hsehld	0.0457 (2.8037)	0.1701 (3.5145)	0.2834 (1.6297)
Persons over 60 in hsehld	0.0153 (0.5464)	-0.0220 (-0.2937)	1.6647 (6.5669)
Other lang. spoken in home	-0.2671 (-10.1559)	0.0900 (1.0514)	-1.4643 (-8.3057)
Unmarried female w/children under 18	-0.4235 (-7.4823)	0.6701 (4.5308)	-5.6720 (-0.8589)
Immigr. U.S. before 1987	-0.1178 (-4.2993)	-0.4647 (-6.2544)	2.0714 (9.2185)
Immigr. U.S. after 1987	0.3029 (0.4733)	0.7673 (4.3721)	5.5777 (10.7305)
PhD	2.4779 (63.8634)	2.4272 (12.0576)	0.7483 (1.8071)
Predicted faculty wage	0.2426 (2.4406)	1.1236 (2.0366)	6.1847 (6.0533)
Predicted private wage	-0.5219 (-7.3198)	-1.1403 (-2.7234)	-3.6631 (-5.0976)
Probability(p)	0.0653	0.0679	0.0448
Representation ratio(r)		1.1551	0.7630
Chi-square	35001.8790	6302.3510	1084.7730
%Correctly classified	94.05	92.89	96.81
No. observ(weighted)	421542	57700	7183
No. observ(unweighted)	20195	2651	287

Probability (P) is the conditional probability that a person with a Master's/Ph.D.is a faculty member.

** For Indians and Hispanics, regional dummy variables were used in regression.

Source: 1% PUMS sample restricted to MHEC states (8) persons with a masters or PhD, age 24-70, and who earned income in 1989

TABLE D.20 ELASTICITIES OF FACULTY PROBABILITY AND REPRESENTATION RATIO WITH RESPECT TO PH.D. AND WAGES

	Total	White	Blacks	Indian*	Asian	Hispanic**
Ph.D.						
slope(p)	0.1391	0.1476	0.0854	0.1386	0.0908	0.1281
elastic (p)	0.3314	0.3358	0.2020	0.2988	0.3353	0.1569
slope (r)		0.0326	-0.2502	0.3035	-0.4186	0.5356
elastic (r)		0.0044	-0.0348	0.0384	-0.0908	0.0386
Predicted faculty wage						
slope(p)	0.0013	0.0008	0.0047	0.0727	0.0078	0.0033
elastic (p)	0.2260	0.1229	1.1010	14.3131	1.6113	0.8157
slope (r)		-0.0107	0.0632	1.2173	0.1142	0.0407
elastic (r)		-0.1031	0.8750	14.0871	1.3854	0.5897
Predicted private wage						
slope(p)	-0.0028	-0.0026	-0.0031	-0.0761	-0.0071	0.-0059
elastic (p)	-0.4827	-0.4365	-0.7491	-15.3336	-1.4921	-1.4899
slope (r)		0.0047	-0.0190	-1.2546	-0.0816	-0.0684
elastic (r)		0.0462	-0.2664	-14.8509	-1.0094	-1.0073

Elasticities (p) of faculty probabilities with respect to Ph.Ds is the percent change in the faculty probabilities as a result of a 1% change in Ph.Ds.

Elasticities (r) of representation ratios with respect to Ph.Ds is the percent change in the representation ratios as a result of a 1% change in Ph.Ds.

Elasticities (p) of faculty probabilities with respect to predicted wages is the percent change in faculty probabilities as a result of a 1% change in predicted wages.

Elasticities (r) of representation ratios with respect to predicted wages is the percent change in representation ratios as a result of a 1% change in predicted wages.

* For Indians, the North Central/Midwest regional variable was used in regression.
** For Hispanics, all regional variables were used in regression.

Source: 1% U.S. PUMS sample (20,195 cases) and restricted to persons with a Master's or PhD, between and including the ages 24-70, and who earned income in 1989.

TABLE D.21 ELASTICITIES OF FACULTY PROBABILITY AND REPRESENTATION RATIO WITH RESPECT TO PH.D AND WAGES

	Total	White	Nonwhite
PhD			
slope(p)	0.0186	0.1535	0.0320
elast(p)	0.0399	0.3167	0.1141
slope(r)		-0.1211	-1.2608
elast(r)		-0.0147	-0.2644
Predicted faculty wage			
slope(p)	-0.0014	0.0071	0.0265
elast(p)	-0.2111	1.1473	5.9075
slope(r)		0.0945	0.4339
elast(r)		0.8214	5.6815
Predicted private wage			
slope(p)	0.0013	-0.0070	-0.0155
elast(p)	0.2087	-1.0629	-3.4989
slope(r)		-0.0655	-0.2276
elast(r)		-0.5802	-3.0162

Elasticities (p) of faculty probabilities with respect to Ph.Ds is the percent change in the faculty probabilities as a result of a 1% change in Ph.Ds.

Elasticities (r) of representation ratios with respect to Ph.Ds is the percent change in the representation ratios as a result of a 1% change in Ph.Ds.

Elasticities (p) of faculty probabilities with respect to predicted wages is the percent change in faculty probabilities as a result of a 1% change in predicted wages.

Elasticities (r) of representation ratios with respect to predicted wages is the percent change in representation ratios as a result of a 1% change in predicted wages.

* For Indians, the North Central/Midwest regional variable was used in regression.
** For Hispanics, all regional variables were used in regression.

Source: 1% U.S. PUMS sample (20,195 cases) and restricted to persons with a Masters or PhD, between and including the ages 24-70, and who earned income in 1989.

TABLE D.22 MAXIMUM LIKELIHOOD COEFFICIENTS IN LOGISTIC MODEL OF FACULTY PROBABILITIES (3% PUMS SAMPLE U.S. POPULATION 24-70 YEARS OLD)

(t-statistics in parenthesis)

	Total	White	Blacks	Indian	Asian	Hispanic
Age	0.2313 (15.6284)	0.0603 (3.9671)	0.3530 (15.4148)	-0.1518 (-2.5091)	0.0159 (0.8154)	-0.0136 (-0.5354)
Age squared	-0.0023 (-11.5000)	-0.0005 (-2.5000)	-0.0035 (-17.5000)	0.0010 (1.4286)	0.0001 (0.2600)	0.0003 (1.0000)
Sex	0.1203 (3.1658)	0.2078 (4.8438)	-0.1388 (-2.3133)	1.6415 (6.9467)	0.1302 (2.1956)	0.6308 (8.2135)
Persons under 18 in hsehld	-0.0140 (-0.3373)	-0.1661 (-3.4822)	0.5486 (9.2047)	-1.8705 (-7.7775)	-0.1761 (-3.0520)	-0.0742 (-0.9298)
Persons over 60 in hsehld	0.1445 (2.3458)	-0.0004 (-0.0057)	0.2394 (3.0000)	-0.0122 (-0.0389)	0.1443 (1.9553)	-0.9402 (-6.2141)
Other lang.spoken in home	-0.2287 (-3.1588)	0.1523 (1.8109)	0.4023 (3.7989)	2.7104 (12.0946)	0.3000 (3.6855)	-0.2158 (-2.2716)
Unmrrd. fem w/chldrn under 18	-1.9356 (-9.0831)	-1.1620 (-5.2770)	-0.3019 (-2.9921)	-7.4535 (-1.0296)	-5.5666 (-2.6022)	-1.9462 (-8.1911)
Immigr. U.S. before 1987	0.0070 (0.0933)	-0.5144 (-5.7156)	-0.4027 (-3.7919)	-7.3055 (-0.4278)	-0.2372 (-2.6041)	0.1262 (1.4674)
Immigr. U.S. after 1987	-0.7541 (-3.4418)	0.2903 (1.8339)	0.8370 (3.9762)	-8.3908 (-0.1380)	-0.0620 (-0.5223)	0.8465 (6.2890)
PHD	4.8098 (122.3868)	5.0681 (114.4041)	5.3130 (90.2037)	7.4322 (20.9535)	4.3957 (75.5275)	6.1685 (78.0823)
Probabiltiy(p)	0.0041	0.0047	0.0018	0.0024	0.0059	0.0011
Representation ratio(r)		1.1453	0.4306	0.5930	1.4353	0.2796
Chi-square	11226.783	11112.581	6092.790	671.352	5622.340	4206.69
%corr. classified	99.5900	99.5300	99.8200	99.7100	99.4100	99.8900
No.Obs(weighted)	833758	633535	877407	57403	283254	753171
No.Obs(unweighted)	41515	32216	37244	3219	13582	35700

Probability (P) is probability that a person in the 24-70 year old sample is a faculty member.

Source: 3% PUMS Sample

TABLE D.23 MAXIMUM LIKELIHOOD COEFFICIENTS IN LOGISITIC MODEL OF FACULTY PROBABILITIES (3% MHEC STATES PUMS SUBSAMPLE, 24-70 YEARS OLD)

(t-statistics in parenthesis)

	Total	Whtie	Blacks	Asian	Hispanic
Age	0.8430 (71.4407)	0.0830 (6.5873)	2.5152 (7.6683)	-0.3057 (-5.0529)	-0.3991 (-5.1036)
Age squared	-0.0006 (-8.5714)	-0.0006 (-7.9010)	-0.0299 (-7.4750)	0.0038 (6.3333)	0.0049 (5.4444)
Sex	0.3308 (10.0547)	0.3409 (9.7960)	1.2471 (5.4530)	-0.3187 (-1.6979)	-1.7565 (-5.7085)
Persons under 18 hsehld	0.1027 (2.9093)	-0.0173 (-0.4589)	2.3288 (8.8514)	1.4211 (7.5071)	-0.1389 (-0.5363)
Persons over 60 hsehld	0.2291 (4.1429)	-0.2612 (-4.3752)	-5.5770 (-1.2374)	0.3096 (1.3345)	-0.7257 (-1.8859)
Other lang. spoken home	0.1467 (2.4991)	-0.1075 (-1.5468)	-3.1728 (-8.8725)	0.3447 (1.1825)	-0.3386 (-1.1572)
Unmarried female w/chldrn under 18	0.2676 (2.8468)	-0.0981 (-0.8508)	0.5818 (2.7456)	-6.7090 (-0.7205)	-5.1732 (-0.4750)
Immigrated to U.S. before 1987	0.1785 (3.1371)	-0.1845 (-2.6395)	4.3431 (17.0988)	5.0777 (0.5987)	1.8598 (6.0977)
Immigrated to U.S. after 1987	0.9978 (9.6220)	0.9644 (8.1178)	-5.1303 (-0.0734)	5.6619 (0.6675)	-5.2094 (-0.3372)
PhD	5.3355 (158.7946)	5.4062 (151.4342)	4.3974 (16.9915)	4.5023 (24.8746)	7.2991 (16.7104)
Probability (p)	0.0038	0.0040	0.0015	0.0102	0.0031
Representation ratio (r)		1.0479	0.3954	2.6872	0.8066
Chi-square	21384.4480	19417.3010	1153.5760	832.6870	679.7200
%corr class	99.61	99.59	99.89	98.98	99.79
No.observ. (weighted)	1366323	1169882	130058	20014	40330
No.observ. (unweighted)	68212	60525	4877	866	1598

Probability (P) is probability that a person with a Masters/Ph.D. is a faculty member

* Regression for American Indians did not converged due to the small number of observations (unweighted observations=332).

Source: 3% of 5% PUMS (0.15%) sample restricted to eight MHEC states.

TABLE D.24 ELASTICITIES OF FACULTY PROBABILITY AND REPRESENTATION RATIO WITH RESPECT TO PH.D.

(Based on regression from 3% PUMS of U.S. population and MHEC states subsample)

	Total	White	Blacks	Indian	Asian	Hispanic
*** U.S.**						
slope(p)	0.0196	0.0237	0.0094	0.0181	0.0258	0.0071
elast(p)	0.0335	0.0504	0.0000	0.0000	0.0874	0.0000
slope(r)		0.2914	0.2218	1,5609	-0.6052	0.3846
elast(r)		0.0025	0.0000	0.0000	-0.0084	0.0000
**** MHEC subsample**						
slope(p)	0.0203	0.0215	0.0066	**	0.0456	0.0224
elast (p)	0.0532	0.0538	0.0000		0.1337	0.0000
slope (r)		0.0728	-0.3655		-2.3083	1.5822
elast (r)		0.0007	0.0000		-0.0258	0.0000

Elasticities (r) of representation ratios with respect to PhDs is the percent change in the representation ratios as a result of a 1% change in Ph.Ds.

Elasticities (p) of faculty probabilities with respect to Ph.Ds is the percent change in faculty probabilities as a result of a 1% change in predicted wages.

Elasticities (p) of faculty probabilities with respect to predicted wages is the percent change in faculty probabilities as a result of a 1% change in predicted wages.

Elasticities (r) of representation ratios with respect to predicted wages is the percent change in the representation ratios as a result of a 1% change iin predicted wages.

* Elasticities for Blacks, American Indians, and Hispanics are zero since mean Ph.D values for these groups are approximately zero.

** Regression for American Indians did not converged due to the small number of observations.The elasticities for Black, Indian, and Hispanic groups are zero since mean PhD values for these groups are approximately zero.

Source: 3% of 5% (0.15%) PUMS U.S. and MHEC subsample.

TABLE D.25 RATIO OF FACULTY HIRES TO FACULTY LEAVERS

	Professor	Associate Professor	Assistant Professor	Instructor
African American	1.72	2.19	2.39	3.16
American Indian	1.00	1.75	3.13	5.75
Asian	1.04	1.38	2.56	3.93
Hispanic	2.83	1.47	2.54	5.25
White	0.39	0.71	2.11	1.64

Computation: Number of faculty hired in the past 3 years divided by number of faculty left in past 3 years.

Source: Appendix C Faculty Development Survey, page 22 (Q34 and Q35).

TABLE D.26 RATIO OF FACULTY HIRES TO FACULTY LEAVERS BY TYPE OF INSTITUTION

	White	Black	Asian	Indian	Hispanic	Minority
TWO-YEAR COLLEGES						
Total	1.371	12.779	5.004	---	12.640	11.708
Faculty	0.224	0.683	---	---	0.891	3.864
Professor	0.368	1.144	2.820	---	---	---
Associate Prof	0.184	0.958	---	0.914	0.895	4.544
Assistant Prof	1.352	2.399	4.673	0.858	4.639	4.157
FOUR-YEAR COLLEGES						
Total	1.514	3.640	3.607	4.851	3.949	3.249
Faculty	1.450	2.452	3.580	2.894	2.305	2.725
Professor	0.411	2.731	0.934	---	2.753	3.318
Associate Prof	0.697	2.909	2.484	3.773	1.978	2.424
Assistant Prof	2.438	2.327	3.694	2.754	2.792	3.153
UNIVERSITIES (W/PHDs)						
Total	1.083	2.180	1.734	2.714	2.043	1.360
Faculty	1.071	2.195	1.952	2.961	2.649	2.138
Professor	0.355	1.683	1.342	1.091	3.030	1.711
Associate Prof	0.666	2.236	1.306	1.131	1.586	1.643
Assistant Prof	2.114	2.497	2.203	4.053	2.131	2.392
PROFESSIONAL SCHOOLS/OTHER						
Total	1.170	2.787	1.508	---	3.111	2.487
Faculty	1.812	2.193	2.812	---	4.333	2.242
Professor	0.388	1.104	0.482	---	2.895	0.601
Associate Prof	1.044	2.267	1.605	---	1.445	2.083
Assistant Prof	1.944	2.196	2.336	3.582	3.436	3.013

Excludes missing values.

Definitions:

Minority: Blacks, Asians, American Indians, and Hispanics

Total: full professors, associate professors, assistant professors, instructors, presidents, provosts, deans, and department chairs

Faculty: full professors, associate professors, and assistant professors.

Ratio: (average number of faculty hired in past 3 years)/(average number of faculty left in past 3 years).

Source: Appendix C MHEC Faculty Development Survey p.7 (Q1), and p.22 (Q34 and Q35).

TABLE D.27 MEAN DIFFERENCE IN FACULTY HIRES AND FACULTY LEAVERS BY TYPE OF INSTITUTION

	Two-year College		Four-year College		University (w/PhD)		Professional/ Other	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
WHITE								
Total	-0.1481	-0.0226	5.4590	1.8603	5.5000	1.9412	2.4000	0.4557
Faculty	-1.5152	-0.2825	3.6795	1.6034	15.6786	8.6078	1.6154	0.5316
Full Professor	-0.4595	-0.0960	-1.8876	-0.9385	-15.4483	-8.7843	-3.2414	-1.1899
Associate Professor	-0.3056	-0.0621	-1.0000	-0.5028	-4.9655	-2.8235	-1.2000	-0.4557
Assistant Professor	1.0000	0.2599	7.1944	4.3408	33.7879	21.8627	5.4048	2.8734
MINORITY								
Total	1.4231	0.2373	2.283**	0.7374	10.1429	2.7843	1.5000	0.3038
Faculty	0.375**	0.0847**	2.0000	0.7654	12.8947	5.9608	0.4737	0.1266
BLACK								
Total	0.7407	0.1243	1.1186**	0.3911**	6.2500	2.1569	1.2500	0.3418
Faculty	0.2500**	0.0565**	0.5211**	0.2235**	5.1500	2.5098	0.3000	0.1139
Full Professor	0.1944	0.0395	0.0685**	0.0894**	0.7143	0.2941**	-0.1429	-0.0253**
Associate Professor	0.1250	0.0226	0.0811	0.0335	0.7727	0.4314	0.2381	0.0886
Assistant Professor	0.2432	0.0734	0.4878**	0.2570**	3.4828**	2.4118**	0.4400**	0.1519**
INDIAN								
Total	0.3333	0.0508	0.1500**	0.0670**	0.6471	0.2353	0.1667	0.0253
Faculty	0.0313**	0.0056**	0.1143**	0.0447**	0.4211	0.2353	0.0500	0.0127
Full Professor	0.0286	0.0056	0.0000**	0.0000**	0.0000	0.0000*	0.0000	0.0000**
Associate Professor	0.0313	0.0056	0.0270	0.0112	-0.0526	0.0196	0.0000	0.0000
Assistant Professor	0.0000	0.0000	0.0897**	0.0447**	0.5714**	0.2941**	0.0455**	0.0127**

	Two-year College		Four-year College		University (w/PhD)		Professional/ Other	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
ASIAN								
Total	0.2963	0.0565	1.0357**	0.3352**	6.6250	1.9412	0.2500**	0.0506
Faculty	0.0938**	0.0226**	1.0448	0.3966**	5.4737	2.3922	0.1053	0.0253
Full Professor	0.0857	0.0169	-0.0141**	-0.0112**	0.4000	0.2549**	-0.0952**	-0.0253**
Associate Professor	0.0000	0.0000	0.0833	0.0335	0.3810	0.2157	-0.0455	-0.0127
Assistant Professor	0.1471	0.0395	0.9367**	0.4413**	5.0000**	2.9412**	0.7200**	0.2278**
HISPANIC								
Total	0.2593	0.0452	0.4655**	0.1620**	2.3125	0.9216	0.2500**	0.1139
Faculty	0.0000**	0.0000**	0.3188	0.1229**	2.0000	1.2549	0.2500	0.0633
Full Professor	0.0294	0.0056	0.0000**	0.0056	0.4211	0.2157**	0.0476	0.0127**
Associate Professor	0.0000	0.0000	0.0278	0.0112	0.3182	0.2353	0.0000	0.0000
Assistant Professor	0.0000	0.0056	0.3165**	0.1508**	1.2727**	0.9020**	0.1364**	0.0506**

** Significant at 5% level.

NOTE: (1) Missing values excluded (2) Missing values replaced by zero.

Definitions:

Faculty: full professors, associate professors, and assistant professors.

Total: full professors, associate professors, assistant professors, instructors, presidents, provosts, deans, and department chairs.

Ratio of means from paired t-tests: (number of faculty hired in last 3 years) - (number of faculty left in past 3 years) by type of institution.

Source: Appendix C MHEC Faculty Development Survey p.7 (Q1), and p.22 (Q34 and Q35).

Appendix D

Analysis of Faculty Flows Using the MHEC Faculty Survey

It is not possible to measure directly faculty turnover rates using the MHEC data set. The questionnaire permits neither the tracking of individual faculty who are hired and who leave nor the calculation of the percentages of hires or quits in relation to existing faculty compositions.

What can be measured, however, is a crude index of recent entering and exiting flows. We know the numbers of faculty hired in the past three years and the numbers of faculty who left in the past three years, as reported by survey respondents and broken down by race and rank. Further breakdowns by institution-type can be computed easily from the data. But given the fact that these flows are not technically turnover rates, we can not use these data to draw strong inferences about racial differences in recruitment and retention rates of faculty. Instead, the data show snapshots of inflows versus outflows of faculty from 1991 to 1994.

Gross Patterns

Using the information contained in Appendix C (p.22) we compute in Table D.25 the ratios of average faculty hires to faculty leavers by rank. At every rank, the average number of minority faculty hired in the past three years exceeds the average number of minority faculty who left in the past three years. This ratio of minority faculty hires to leavers is largest at the instructor level, and for African Americans, American Indians, and Asians, the ratio is larger at the assistant professor level than at the associate professor or full professor levels.

Ratios of white faculty hired to white faculty who left are lower than the minority ratios. Moreover, at the full professor and associate professor levels. These ratios are less than one. In other words, more white professors and associate professors left in the past three years than were hired.

Institutional Patterns

The gross patterns described above do not differentiate among types of institutions. Table D.26 displays the ratios of average faculty hired to average faculty who left broken down by two-year colleges, four-year colleges, Ph.D.-granting universities, and professional/other institutions. The table also displays ratios for faculty denoted by assistant professors, associate professors and full-professors and total academic staff--combining faculty and such academic administrators as department chairs, deans and provosts. Because missing values in the data set are excluded from the computations, the averages for the faculty ratios do not sum to the averages for assistant professors, associate professors, and professors.

Nevertheless, broad patterns are evident:

- At two-year colleges, the ratios of minorities hired to minorities who left are larger than the ratios of whites hired to whites who left.

- At four-year colleges, the ratios of minority faculty hired to minority faculty who left exceed the ratio of white faculty hired to white faculty who left, but not at all ranks for all races. At the highest rank of full professor, there were fewer Asians hired than who left, although the ratio is still larger than the white ratio. At the lowest rank of assistant professor, the ratio of black faculty hired to black faculty who left is slightly lower than the ratio of white faculty hired to white faculty who left. For the other races, the differences between the ratio and that for whites are smallest at the assistant professor level.

- At Ph.D.-granting universities, the ratios of minority faculty hired to minority faculty who left exceed the white ratio, although the excess is not substantial at the assistant professor level.

- Professional and other institutions generally hired more minority faculty than those who left, except at the full professor level. At other levels minority faculty hired relative to minority faculty who left exceeded white faculty hired relative to white faculty who left.

The above gross patterns suggest that at four-year colleges and universities and at the lower ranks the flows of minority and white faculty are comparable but that overall, these institutions have been losing more white faculty relative to white faculty hired than they have been losing minority faculty.

Mean Differences Between Hires and Leavers

The gross patterns described above do not distinguish between gains and losses of faculty within individual institutions and overall gains and losses in the MHEC states. For example, the excess of hires over leavers among minority faculty in Table D.25 could come about because some institutions are hiring them while other institutions within the region are losing them. In other words, the gross patterns do not tell whether specific institutions are gaining or losing minority faculty.

To determine the gains and losses experienced by individual institutions, we decided not to compute the ratios as described above. Some institutions had no hires and several losses of faculty; others had no losses and several hires. In the first instance, the cases would be all coded as zero; in the second, the cases would be coded as missing (due to division by zero). We computed, instead, the difference between hires and leavers for each individual institution by rank and by race.

Table D.27 reports the results when these computations are performed when missing values are excluded and when missing values are set equal to zero. Thus, if a respondent reported blank for the number of hires and 4 for the number of leavers, then when missing values are excluded, this respondent would be dropped; when missing values are recoded to zero, this respondent's value would be computed as -4. Columns labeled (1) denote missing values excluded; those labeled (2) denote missing values replaced with zeros.

We conducted t-tests for the difference in the means of (H-L) between whites and minorities, where H=number of faculty hired in last three years and L=number of faculty left in the past three years. A two-tailed test significant at the 5-percent level is indicated by '**'.

The results from this table do not always coincide with the results from the previous tables. There are two reasons for the differing results: 1) Qualitative differences--such as the finding that fewer whites are hired relative to whites who left in comparison to minorities who are hired relative to minorities who left--are not uniformly statistically significant; and 2) Ratios tell a different story than differences.

For example, Table D.27 shows that the more whites left than whites who were hired at two-year colleges. The average difference between white hires and leavers was -0.1481. There were more minorities hired than minorities who left. The average difference between minority hires and leavers was 1.4231. The qualitative conclusion is the same as that in Table D.26 which shows a ratio of white hires to leavers of 1.371 and a ratio of minority hires to leavers of 11.708. Both tables seem to show that there were more minority hires relative to leavers than there were white hires relative to leavers. However, the difference in Table D.27 is not statistically significant. In other words, statistically speaking, the hires-less-leavers among whites and minorities are indistinguishable.

Another example demonstrating the lack of comparability between the two computations is the case of black and white assistant professors at four-year colleges. According to Table D.26, the apparent conclusion is that the ratio of hires to leavers is just slightly lower among black assistant professors (2.327) than it is among white assistant professors (2.428) . According to Table D.27, in contrast, the difference between black assistant professor hires and leavers (.4878) is substantially smaller--and significant at the 5-percent level--than the difference among white assistant professors (7.1994). Indeed, for each race the excess of minority hires over minority leavers is substantially smaller than the excess of white hires over white leavers at the assistant professor level. Thus, the broad conclusion that, at the assistant professor level the hires relative to leavers are comparable between whites and minorities is only true if we look at ratios; it is not true if we look at differences.

The story told by looking at the differences between hires and leavers is that at the lowest ranks within each minority group there is a smaller excess of hires over leavers than there is among whites at four-year colleges, Ph.D.-granting universities, and professional/other institutions. At the higher ranks, the effects are mixed and differ by institution. However, among all faculty, overall there is little racial difference in the hire-leaver gap at four-year, Ph.D.-granting universities and professional/other institutions.

APPENDIX E: EXEMPLARY PROGRAMS

Each of the following exemplary programs address at least one aspect of minority faculty development. These programs provide examples of institutional support for the recruitment, retention, and promotion of faculty of color. Most of the exemplary programs we examined are "pipeline" programs even though they differ in composition and emphases. The various emphases can be divided into roughly three categories: fellowships, special hiring programs or contracts, and mentoring and networking opportunities. In several cases, program activities may overlap within these categories.

Fellowships

The following programs emphasize the need for increasing the pool of minority doctoral candidates and Ph.D. recipients as a means for increasing minority faculty at institutions of higher education.

General programs include:

The American Political Science Association:
Graduate Fellowships for African American, Latino, and Native American Students of Political Science

The program began in 1969 for African Americans and expanded in the early 1980's for Hispanic/Latinos. In 1994, the program was expanded once again to include Native Americans. The top three African American fellows, the top Hispanic/Latino fellow, and the top Native American fellow are offered stipends of $6,000 for one year of study. Fellows with stipends usually have their tuition and fees waived, and the graduate school is encouraged to support the remaining years of their study. After the fellows are selected, their names are sent to every doctoral department of political science in the country.

The program has helped over 40 African American and Latino political scientists earn their doctorates.

Bureau of Indian Affairs:
Office of Indian Education Programs, Higher Education Newsletter

This newsletter contains information about how to apply for scholarships and grants in all areas of the United States. It provides access to information pertaining to over 30 different scholarship and grant programs.

The Danforth Foundation:
Dorothy Danforth Compton Fellowship Program

Created in 1981, this program targets African American, Native American, Mexican American and Puerto Rican students. An emphasis is placed on studies in the liberal arts. Each participating university receives $105,000 annually for the program. Of that sum, $100,000 is provided for the fellowships and $5,000 is designated for support activities for students.

In addition to financial support, fellows are required to participate in several activities, including regional meetings held each year and a national meeting held biennially. The purpose of the regional and national meetings is to orient new fellows to academic life, provide closure for those receiving doctorates, promote interaction between alumni and current fellows, provide for the sharing of scholarly accomplishments, and provide an opportunity to assess program activities.

As of May, 1994, 230 Compton fellows had completed requirements for the doctorate. Almost 80% have secured positions at major universities. Presently, there are 97 students receiving assistance as fellows.

GEM (The National Consortium for Graduate Degrees for Minorities in Engineering and Science, Inc.:

GEM's mission is to provide graduate study opportunities for under-represented minority students as the master's and Ph.D. levels in engineering and science through a program of financial aid and paid summer internships.

This is accomplished by several activities including (but not exclusively): Identifying potential minority graduate students and encouraging them to make application to graduate school/fellowship programs, promoting graduate education to minority students as a career/life goal planning option, and building partnerships between universities and industrial/governmental laboratories to provide resources to support minority graduate students.

During the first year of doctoral studies, the GEM Center pays to the university a $12,000 a year stipend and a $5,500 cost of instruction grant to the institution where the Fellow is enrolled in lieu of all required tuition and fees for 12 months. Thereafter, the total fellowship cost is borne by the enrolling university. This program is funded by sponsoring employer and university members.

The National Research Council:

Ford Foundation Predoctoral Fellowship For Minorities

50 Pre-doctoral Fellowships are awarded each year to representatives of the following populations: Alaskan Natives, Native American Indians, Black/African Americans, Mexican Americans/Chicanos, Native Pacific Islanders (Polynesian or Micronesian), and Puerto Ricans. Each fellow receives support for up to a maximum of three years which includes an annual stipend of $11,500, and an annual institutional grant of $6,000 in lieu of tuition and fees. The fellowship is tenable at any accredited nonprofit United States institution of higher

education offering Ph.D.s or Sc.D.s in fields eligible for support in this program.

Ford Foundation Dissertation Fellowship For Minorities

Intended for Ph.D. or Sc.D. degree candidates in United States institutions who have completed all course work, examinations, language requirements, and all other departmental and institutional requirements except for the writing and defense of the dissertation.

Fellows receive a stipend of $18,000. The tenure of the fellowship is no less than 9 months and no more than 12 months.

The National Science Foundation:

NSF Minority Graduate Research Fellowship

In March, 1995, the NSF will award approximately 1,000 new three-year Graduate and Minority Graduate Fellowships. NSF Fellows are expected to contribute significantly to research, teaching, and industrial applications in science, mathematics and engineering.

The 1995-96 stipend will be $14,000 for 12-month tenures, and pro-rated monthly at $1,200 for lesser periods. The fellowship institution will receive a cost-of-education allowance of $8,600 per tenure year, per fellow. Fellows may choose any appropriate, accredited nonprofit U.S. institution or appropriate foreign institution of higher education offering advanced degrees in science or engineering.

Mentoring Assistantships are also available for Minority Graduate Fellows.

New Jersey Department of Higher Education:

Minority Academic Career Program

MAC awards are tenable at eight New Jersey institutions of higher education. The program provides opportunities for sustained financial support through loan and loan redemption service to members of minority groups who seek academic careers in teaching and research. Program fellows are awarded annual stipends of at least $5,000 from the doctoral institution. Fellows may apply for loans of up to $10,000 per year during for up to four years of study. One quarter of the loan value will be canceled for each full year of qualified employment service following completion of the program.

The Ph.D. Project:

Largely sponsored by the KPMG Peat Marwick Foundation, the Ph.D. Project has a scholarship program directed toward increasing the number of African Americans seeking doctoral degrees in business. A consortium of businesses and corporations have come together to forward the mission of the Project. KPMG has committed $2 million toward its efforts, and fourteen students were sponsored during 1994. Remaining resources are directed toward the overall goal of the Project: to increase African American, Hispanic and Native American business school faculty.

Mentoring and networking conferences are also sponsored by the Project. The program is in its second year of operation.

More specifically, the following program is targeted to many institutions within MHEC states:

Committee on Institutional Cooperation (CIC):
A consortium of 12 leading research-intensive institutions working together on academic projects and programs.

The CIC Pre-doctoral Fellowship Program in the Humanities

Minority scholars have been launched on Ph.D. programs in the humanities fields, with two years of Mellon Foundation funding and provided with continuing support by their institutions for an additional two years.

The retention and degree completion rates of CIC Fellows in the Humanities have remained quite good during its thirteen-year history. Of the total 155 students who were awarded CIC Fellowships: 46% are actively pursuing degrees at stages ranging from first enrollment fall '92 to ABD, and 12% have completed the Ph.D. Of those 18 Humanities Fellows who earned the Ph.D., fifteen are now college or university faculty members.

CIC Graduate Minorities Fellowships Program in the Social Sciences

An evaluation of the program was performed and focused on the period between 1977-1986. Evaluation findings cited of the roughly 200 persons who were enrolled in the program, about 70% retained active standing and either have completed the program (i.e. received Ph.D.) or are making satisfactory progress toward that end.

Representatives of all the CIC institutions have indicated that the applicant pools developed through implementing the Graduated Minorities Fellowships Program has uncovered a number of minorities whose expertise would not have otherwise come to their attention.

There are also programs directed to specific institutions or are self-generated within institutions:

Carleton College:
Minority Scholars Program

The program began in 1988 to support student research and encourage students to consider careers in college teaching. Carleton College collaborates with Harvard University, Yale

University, and Stanford University for this program. Thirty-three students participate in the project.

Florida Education Fund:
McKnight Doctoral Fellowship Program

Up to 25 fellowships per year are awarded to African Americans to pursue doctorates at one of 11 institutions in Florida. Each award includes an annual stipend and tuition. 52% of fellows are in science areas. As of 1993 there were 138 who had matriculated and 45 had received doctoral degrees. It has created somewhat of a pipeline effect into the Junior Faculty Development Program at Florida institutions.

Oberlin College:

Undergraduates with graduate school potential attend summer conferences and work with faculty members on a research project. Both faculty and students are given resources for expenses. Each department does its own recruiting. There is a Bridge Petroleum Scholars Program for women and minorities in math and science.

University of Missouri - Columbia:
Ridgel Graduate Fellowship Program

Part of the University's diversity programs, this program is to sponsor minority graduate students through the doctoral/terminal degree. Most recipients are expected to enter the professorate in the future.

A subset of institution-specific programs could be described as "grow your own" programs. Two institutions have developed a stronger "pipeline" effect within their minority faculty development programs while utilizing fellowships.

The Pennsylvania State University:
Center for Minority Graduate Opportunity and Faculty Development

The Office for Minority Graduate Opportunities objectives are to increase the number of minority graduate students at Penn State through aggressive recruitment, to retain students at the university until they have successfully completed all requirements for the enrolled degree, and to provide opportunities for minority graduate students professional and personal development during their tenure at Penn State.

University of Kansas at Lawrence:

Diversity Programs - A Board of Regents Directive

Several initiatives are part of an overall diversity and multiculturalism plan for the university. An attempt is being made to transform the university's environment on a number of levels. A specific emphasis has been given to scholarship and fellowship programs to promote Ph.D.s and careers in academia. These programs include: Ethnic Minority Scholarships, Kansas University Dean's Scholarship Program for those seeking academic careers, Faculty Loan Repayment Program for minority medical doctors to enter academia, and "Grow Your Own" program which provides support for instructors to earn their doctorate.

Wayne State University:
Minority Faculty Research Award Program

A grant of $10,000 maximum is awarded to minority faculty in pursuit of tenure and promotion. The grant can be used for summer salary, support personnel, equipment/supplies, and related research and travel.

Martin Luther King/Caesar Chavez/Rosa Parks Fellowship Program

A grant of $6,250 is awarded to doctoral students seeking academic careers. These fellowships are for areas other than education and focus on under-represented academic disciplines.

Hiring Programs

The second type of emphasis that many of these programs embrace is policies and resources toward promoting minority faculty recruitment and retention. Various institutions have created funding pools for hiring minority faculty or special contracts with minority faculty which allow for further career development and research as incentives in the recruiting process.

Examples of exemplary programs in this area are:

Creighton University:

A one year (1990) initiative was created in which the president made funds available to hire minority faculty. The result of the initiative was that 16 minority faculty were hired. As of the spring of 1994, 14 of those faculty remain at the institution, and two have tenure.

University of Ohio- Miami:
Voluntary Affirmative Action for Blacks and Other Minority Faculty

The university compiled a Faculty Impact Analysis of Racial Minorities across all departments. Presently, the university ensures that the pools of candidates include minorities and women. To do this, resources are pooled across departments by extracting $25,000 from department budgets in each budget cycle. The program is an arrangement between the president, provost and affirmative action office. 13% of hires are made with assistance of these funds.

University of Missouri - Columbia:
The Faculty Affirmative Action Fund

Financial assistance is offered to appoint minority faculty within departments.

University of Nebraska - Omaha:
College of Public Affairs and Community Service
Minority Faculty Development Program

Special contracts are created with minority faculty. These contracts involve teaching 2 sections of 1 preparation, tuition for doctoral work, an office, travel, and equipment resources, and fringe benefits on the basis of .75 FTE faculty member (minimum salary of $21,000).

There is a guaranteed conversion to tenure track with salary change from .75 to 1.00 FTE (with option to negotiate salary level). There are no strings attached to the number of years the individual must agree to stay in the employ of the College of Public Affairs and Community Service.

As of May, 1994, the program had exceeded its minimum goal of 3 minority faculty hires which have been converted to tenure tracks.

The Minority Faculty Development program has been extended to other colleges at the University of Nebraska - Omaha.

Sinclair Community College:

Participants are hired into tenure tracks as instructors. The institution pays for tuition at Wright State University in Dayton, Ohio. They are given a reduced teaching load and paired with a mentor. Participants are allowed 3 years on the program in which to obtain their graduate degree (MA or MS).

Mentoring and Networking

The final category includes programs with primary activities which promote mentoring and networking opportunities. Several of the fellowship programs mentioned earlier include mentoring and networking components but differ from the programs that are listed below due to their specific emphasis on providing financial resources for minority students to obtain doctoral degrees.

Programs with a specific emphasis on creating mentoring or networking opportunities are:

University of Ohio - Miami:

Mentoring activities are being utilized as a means for the retention of minority faculty. In addition, orientation activities may ensure minority faculty retention as faculty enter with other minority faculty and staff. There are resources for research and publications, and minority faculty are encouraged to collaborate on publications. They are offered grant opportunities and collaborative partnerships on publications.

Midwest Consortium for Latino Research:

This Consortium was created in 1986 to address the lack of research and training opportunities for Latino researchers, faculty, and students in Midwestern colleges and universities. There are a number of activities and resources the Consortium provides to create mentoring and networking opportunities.

MCLR Listserv - A dialogue and exchange of research ideas, upcoming events, job announcements, scholarship opportunities, etc. It is subscribed to by over 3000 scholars.

MCLR Newsletter - Published for the purposes of generating interest in research on Latinos in the Midwest and promoting Latino/a scholarship. 12,000 individual subscribers.

MCLR Latino Resource Directory - Compiled to help meet the growing human resource needs of higher education institutions and the Latino community.

MCLR Conferences - Researchers, faculty, and students meet and participate. Relationships are forged which foster a nurturing environment for intellectual growth.

Scholars Roundtables - Fosters collaborative and comparative research about Latinos in the Midwest.

The Pennsylvania State University:
Center for Minority Graduate Opportunity and Faculty Development

In addition to recruiting minority graduate students to Penn State, the Office for Minority Faculty Development attempts to provide mentorships in order to retain minority faculty members, to promote minority faculty development through professional workshops, and to provide supplemental funding for research.

Rutgers University:
Minority Advancement Program (M.A.P.)

This program is designed to develop the next generation of minority faculty by drawing upon the nearby culturally diverse populations of New York City and Philadelphia. The program provides financial, tutorial, and counseling assistance, strong academic support from a faculty mentor, and a research skills building program for minority graduate students.

University of Kansas:
Langston Hughes Program

A visiting professorship in the African American Studies department has been created to provide mentoring support for students and to promote a wider exposure for the participating professor. There is a faculty committee on campus which solicits nominations from deans and departments across the university, and the program has brought prestigious academics to campus.

University of Wisconsin-Milwaukee:
Gateway to Engineering, Science and Technology Program (GEST)

Created in 1974, the mission of GEST is to increase the pool of minority students who are prepared for technical and scientific fields of study. This program is not directed toward graduate degrees, rather it is to open doors to secondary students to enter college and to pursue degrees within mathematics and science. The goals of the program are achieved through summer preparatory programs and a pre-college program. In the past five years, GEST has also provided support to college students through the creation of study-groups, one-on-one tutoring, etc.

Student participation between 1991 and 1993 varied across programs. There were roughly 200 students enrolled in the PREP Summer program, 50 students served in the Summer Engineering Institute, 40 students enrolled in the Precalculus/Calculus Course, and hundreds of other students participating in GEST sponsored science fairs and expo's. Roughly 90% of GEST participants are African American, Hispanic American and Native American students. 85% of GEST participants have enrolled in college or college-prep programs upon graduation from high school. 43% of these high school graduates have enrolled in the UW system campus programs.

Similar precollege programs are sponsored through the National Association of Precollege Directors (NAPD), a coalition of 24 precollege program directors whose mission and program efforts are directed at increasing the pool of Black, Hispanic and American Indian students who pursue engineering and science based college study.

The NAPD has operating programs in 35 states which include program elements of academic program enrichment, instructional applications, student internships and research projects, academic advising and college counseling, and science/college fairs and college/industry field trips.

APPENDIX E
EXEMPLARY PROGRAM MATRIX

MFD EXEMPLARY PROGRAMS MATRIX Updated December 5, 1994

Institution/Contact Name Year Established	Information Received	Summary Initiatives, Unique Aspects, Improvement Needed, Other Comments
Florida Education Fund 201 E. Kennedy Blvd.,#1525 Tampa, FL Tribble, Israel Jr 813/272-2772 1984	Brochures Evaluations Proposal X Reports	**Initiatives:** McKnight Doctoral Fellowship Program. up to 25 fellowships per year awarded to African Americans to pursue doctorate degrees at one of 11 institutions in Florida, award is for annual stipend & tuition, Jr. Faculty Development Program. 1 year release with full pay and benefits for research, publication, or pursue terminal degree. **Unique Aspects:** 52% in science areas, evaluation study of program completed, as of '93 there were 138 matriculated and 45 had received doctoral degree; somewhat of a pipeline effect from Doctoral Fellowship program into Jr. Faculty Development Program, also includes white females. **Improvement Needed:** Program includes a minimal # of Hispanics, no Asian or Native Americans, soft financial base: decreased funds have caused reduction of Jr. Faculty Fellows from 20 to 5. **Other Comments:** A Fellow: "it is for the collective empowerment of our people. it helped to overcome the natural obstacles . as well as the barriers that need not be part of the process." Also cited were the formation of lifelong friends and professionals.
CIC 302 East John St., Suite 1705 Champaign, IL 61820-5698 Clark, Roger 217/333-8475 1977	Brochures X Evaluations X Proposal Reports	**Initiatives:** Pre-Doctoral Fellowship Program in Social Science & Humanities: students are part of cohort, stipend & tuition; dissertation fellowships; small grants program; networking conferences **Unique Aspects:** A consortium of 12 leading research-intensive institutions working together on academic projects and programs. Fairly good tracking of progress of participants, fairly good tracking of time-to-degree rates. **Improvement Needed:** Part of design is to increase minority faculty access to hi-education by increasing the number in minority faculty pool. There appears to be no definite tracking of increase in the pool or the success of those who may have made it into the pool. **Other Comments:** Financial support from each institution as well as the Andrew W. Mellon Foundation & The Lilly Endowment, Inc.

EXEMPLARY PROGRAMS MATRIX

Institution/Contact Name Year Established	**Information Received**	**Summary Initiatives, Unique Aspects, Improvement Needed, Other Comments**
University of Kansas 222 Strong Hall Lawrence, KS 66045-2300 Frost, Gregory 913/864-3301 1989	Brochures Evaluations Proposal X Reports	**Initiatives:** Minority Graduate Leadership Conference. (for recruitment of graduate students); Ethnic Minority Scholarships; KU Dean's Scholarship program for those seeking academic career; Faculty Loan Repayment Program for min. Medical Dotors to enter academics; "Grow Your Own": support for instructors to earn doctorate **Unique Aspects:** Initiatives are part of an overall diversity and multiculturalism plan; an attempt is being made to transform the university system's environment on a number of levels. **Improvement Needed:** Establishment of an internal review to determine whether programs are achieving desired results; no evidence of a tracking mechanism for participants. **Other Comments:** The university has a strong and proactive diversity and multiculturalism statement which has emanated from their board of regents.
University of Kansas Prentice, Carole 1977	Brochures Evaluations Proposal X Reports	**Initiatives:** A visiting professorship in the African American Studies department that provides mentoring support for students and wider exposure for the professor. **Unique Aspects:** A faculty committee on campus solicits nomination from deans and departments. It has brought some prestigious people to campus. **Improvement Needed:** The amount of money is not high; funds are not guaranteed from year to year, there has been no formal evaluation of the program. **Other Comments:** "We all feel good about it. It has strengthened ties. This professor has had an impact on the department."

EXEMPLARY PROGRAMS MATRIX

Institution/Contact Name Year Established	Information Received	Summary Initiatives, Unique Aspects, Improvement Needed, Other Comments
Midwest Consortium for Latino Research Michigan State University Kellogg Center, Suite #7 East Lansing, MI 48824-1034 Silva-Cook, Belinda 517-432-2220	X Brochures Evaluations X Proposal X Reports	**Initiatives:** Increase undergraduate and graduate student identification, recruitment and retention at member institutions; Develop professional skills of graduate students through mentorship, cohorts, conferences, and summer workshops; Support new faculty though mentoring, providing funds for research initiation grants, supporting conference participation, and providing outlets and support for developing working papers leading to publications; Developing information sources on Latinos in the Midwest. These initiatives are addressed through four ongoing projects: MCLR List Server (Email network), MCLR Newsletter, MCLR Latino Resource Directory, and MCLR conferences. **Unique Aspects:** Electronic Email network. Email users are invited to participate, dialogue and exchange research ideas and/or information on upcoming activities and events such as conferences, job announcements, scholarship opportunities, art exhibitions or anything else related to Latinos in higher education. This is the first electronic network for Latino scholars in the country. It serves to promote national and international research on issues affecting the Latino population. **Improvement Needed:** From the information provided there does not seem to be an evaluation component to any of the stated initiatives. The prospectus states that "each project will be periodically evaluated by the Consortium's administrative staff" however, do further details are given. **Other Comments:** Detailed information concerning MCLR's activity to attain their stated goals are not available in the information supplied. MCLR has at least seven projects that are currently in the planning stages: Recruitment and Retention Service, University-Community Partnerships, Competitive Research Initiation Grants Program, Policy Research Publication, Scholars Roundtable's, Intensive Seminar for Prospective Latino Researchers, Latino Faculty/Scholar Exchange.

EXEMPLARY PROGRAMS MATRIX

Institution/Contact Name Year Established	Information Received	Summary Initiatives, Unique Aspects, Improvement Needed, Other Comments
Wayne State University 4043 Faculty/Admin Bldg 656 W Kirby Detroit, MI 48202 313 577-5600	X Brochures Evaluations Proposal X Reports	**Initiatives:** Minority Faculty Research Award Program: $10,000 max; for minority faculty in pursuit of tenure and promotion; for summer salary, support personnel, equip/supplies, and related research travel. MLK/C Chavez/ R. Parks Fellowship Program: $6250 for doctoral students seeking academic career. A mentoring program is also in place. **Unique Aspects:** MLK/et al Fellowship is for areas other than education and centers on underrepresented academic disciplines; award may be used in conjunction with other forms of financial support. **Improvement Needed:** Minority Faculty Research Award Program funds are not normally awarded to attend professional meetings. **Other Comments:** 30% of WS students are minority. This could mean that minorities in that community could have a greater chance at other WS programs not specifically geared toward minorities.
Carleton College Northfield, MN 55057 1988	Brochures Evaluations Proposal X Reports	**Initiatives:** The Minority Scholars Program is for students considering college teaching; the funds in the program are geared to student research. **Unique Aspects:** 33 students participate in the project, it is a minority research scholars program with Harvard, Yale, and Stanford. Other schools have participated in the past. **Improvement Needed:** No clear information on tracking or evaluation of the program. **Other Comments:** "It depends on the faculty person to be successful...Some [students] do it for money, some do it because they are interested."
Lincoln University P O Box 29 Jefferson City, MO 65102-0029 Rayburn, Wendal 314/681-5042	X Brochures Evaluations Proposal Reports	**Initiatives:** **Unique Aspects:** **Improvement Needed:** **Other Comments:** Respondent: "I do not fell that Missouri has an institution that can be held as a model in this area...there are several institutions...with an institutional climate and/or practices that successfully support and retain minority faculty on campus."

EXEMPLARY PROGRAMS MATRIX

Institution/Contact Name Year Established	Information Received	Summary Initiatives, Unique Aspects, Improvement Needed, Other Comments
University of Missouri-Columbia 116 Jesse Hall Columbia, MO 65211 Morrison, KC 314/882-9060	Brochures Evaluations Proposal X Reports	**Initiatives:** The Faculty Affirmative Action Fund: financial assist. to appoint. min. faculty (incentive funds to existing faculty lines). Ridgel Grad Fellowship Program: sponsor minority grad students through the doctorate./term degree many are expected enter professorate in future. **Unique Aspects:** Success in helping schools and colleges take advantage of special opportunities that arise for faculty appointments. **Improvement Needed:** No apparent formal evaluation of the success of the program. No apparent tracking of the graduate students to see how many actually do enter and /or persist inside the professorate. **Other Comments:** The institution does have a diversity training program that is far reaching. They believe this to be essential to faculty. development and retention of min. faculty. They do have a Program for Excellence in Teaching geared to all faculty.
University of Nebraska-Omaha College of Public Affairs and Community Service, Office of the Dean Omaha, NE 68182-0145 Hinton, David 402/554/2276	X Brochures X Evaluations Proposal Reports	**Initiatives:** Special term contract: teaching 2 sects. of 1prep/term. tuition. for doctorate. work. +office, travel, equipment. fringe benefits on basis of .75 FTE faculty. member (min. salary. $21,000. **Unique Aspects:** Guaranteed conversion to ten. track with salary change from .75 to 1.00 FTE (with opportunity to negotiate salary level). No strings attached as to # of years the individual must agree to stay in employ of the college. **Improvement Needed:** Formal evaluations of program; Feedback needs to be gathered from participants frequently enough to allow adjustment in program; What constitutes success; Is there a solid funding base **Other Comments:** As of May 94 program had exceeded it's minimum goal of 3 minority faculty. by 3; Three have been converted to ten. tracks; MFD program has been extended to other colleges at UNO.

EXEMPLARY PROGRAMS MATRIX

Institution/Contact Name Year Established	Information Received	Summary Initiatives, Unique Aspects, Improvement Needed, Other Comments
Creighton Affirmative Action Office Nebraska Pierce, John 402/280 2727 1990	X Brochures Evaluations Proposal X Reports	**Initiatives:** The president made funds available to hire minority faculty; 16 were hired; 14 remain at the institution, 2 have tenure; on-going evaluation meetings. **Unique Aspects:** It is similar to initiatives at the University of Miami in Ohio, and Stanford. **Improvement Needed:** It was a one year program; no clear evaluation of success; some confusion existed on the campus about the origins of the funds. **Other Comments:** "We were not making progress going through regular processes...The departments did their own outreach, we didn't advertise."
Rutgers University 25 Bishop Place New Brunswick, NJ 08903 Broder, Rita 908/932 7908	Brochures Evaluations Proposal X Reports	**Initiatives:** Financial assistance for minority graduate students; strong academic support from a faculty mentor; A Minority Advancement Program for financial, tutorial, and counseling assistance; research skills programs; help with reference techniques. **Unique Aspects:** The program positions itself as designed to develop the next generation of minority faculty. The institution is close to the culturally diverse areas of New York City and Philadelphia. **Improvement Needed:** No evidence of a clear evaluation of the success of the program; no evidence of tracking to see if the goal of adding to the minority faculty pool is happening. **Other Comments:**

EXEMPLARY PROGRAMS MATRIX

Institution/Contact Name Year Established	Information Received	Summary Initiatives, Unique Aspects, Improvement Needed, Other Comments
Miami University Oxford, OH 45056 Hunter, Gary 513-529-1809 1988	Brochures Evaluations Proposal X Reports	**Initiatives:** Chance to meet with other minority faculty during interview process; once hired, orientation and meeting with other minority faculty; given volunteer mentors; money available for research opportunities, encouraged to collaborate on publications; annual review. **Unique Aspects:** There is no external funding; money is pulled out of department budgets in each budget cycle; collaboration between president, provost and affirmative. action office; a percentage of the new hires are made with some of these funds. **Improvement Needed:** Program evaluation is anecdotal through the use of a staffing analysis: a look at promotion and tenure of minorities. **Other Comments:** "Minority hiring and retention is a priority of the institution." The institution does use exit interviews as part of its evaluation method. The institution is looking at another program to offer positions to ABD students.
Oberlin College Peters Hall 108/50 North Professor Street Oberlin, OH 44074-1091 Hill, Deidre 216-775-8140 1989	X Brochures Evaluations Proposal Reports	**Initiatives:** Undergraduates with graduate school potential attend a summer conference; they work with faculty members on a research project, faculty and students are given expense support; students are encouraged to pursue graduate study. **Unique Aspects:** Each department does its own recruiting. There is a Bridge Petroleum Scholars Program for women and minorities in math and sciences. **Improvement Needed:** Need more funds: they get many applications, but have to turn down some very good proposals. They have no students in the sciences. No clear tracking of students in program. **Other Comments:** "...we cultivate what's here."

EXEMPLARY PROGRAMS MATRIX

Institution/Contact Name Year Established	**Information Received**	**Summary Initiatives, Unique Aspects, Improvement Needed, Other Comments**
Sinclair Community College OH Barr, Cliff 513/226-2916	Brochures Evaluations Proposal X Reports	**Initiatives:** Participants given a reduced teaching load, mentoring, and a three year time span in which get their graduate (MA) degree. **Unique Aspects:** The institution pays for tuition at Wright St. U. of Dayton; group of participants were hired into tenure tracks as instructors; they get full salary with a 3/4 teaching load. **Improvement Needed:** A need for more positions and funding for the program, a way to deal with possible backlash from within the institutions (participants in program were given tenure tracks and adjuncts felt bypassed). Program was a one year commitment. **Other Comments:** "Success was guaranteeing their [the participants] success."
Ohio University Office of Affirmative Action Crewson House 101 Athens, OH 45701-2979 Smith, William 614/593-0790 1988	Brochures Evaluations X Proposal X Reports	**Initiatives:** Departments were provided with financial incentives to recruit African American faculty, administrators, and graduate students. **Unique Aspects:** The university more than doubled its number of African American tenured faculty in the first 2 months of the program. **Improvement Needed:** Program was not established on a long term basis. Funds are determined on a year-to-year basis. Hispanic and Native American tenure track faculty numbers appear low. No evidence of unified support program for new hires; no apparent tracking method. **Other Comments:** Appears to be a solid effort in the area of affirmative action recruiting.

EXEMPLARY PROGRAM MATRIX

Institution/Contact Name Year Established	Information Received	Summary Initiatives, Unique Aspects, Improvement Needed, Other Comments
University of Wisconsin - Madison Office of the Chancellor 158 Bascom Hall 500 Lincoln Dr Madison, WI 53706-1380 1988	Brochures Evaluations Proposal X Reports	**Initiatives:** Strong commitment to affirmative action in the hiring of minority faculty members, as detailed in "The Madison Plan" **Unique Aspects:** **Improvement Needed:** There seems to be no specific program to cultivate newly hired minority faculty members in pursuit of tenure. Major emphasis is on the hiring process. **Other Comments:** U-W Madison has gone a long way toward reaching it minority faculty hiring goal---but there seems to be no tracking information for those who have been hired.

EXEMPLARY PROGRAMS MATRIX

Institution/Contact Name Year Established	Information Received	Summary Initiatives, Unique Aspects, Improvement Needed, Other Comments
	Brochures Evaluations Proposal Reports	**Initiatives:** **Unique Aspects:** **Improvement Needed:** **Other Comments:**
	Brochures Evaluations Proposal Reports	**Initiatives:** **Unique Aspects:** **Improvement Needed:** **Other Comments:**

APPENDIX F
NSF SURVEY OF PH.D. RECIPIENTS

*TABLE 1. TOTAL EMPLOYED ARTS AND SCIENCE PHDS BY YEAR OF DOCTORATE, 95/01/30 PAGE- 1
* BROAD FIELD OF DOCTORATE, SECTOR OF EMPLOYMENT, LOCATION
* OF EMPLOYER, AND RACE/ETHNIC GROUP, 1991
RACE/ETHNIC GROUP

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	520762	450215	11428	45722	874	9884	2171	1697	6016	2639
	H	100.0	86.5	2.2	8.8	.2	1.9	.4	.3	1.2	.5
MHEC STATES	WN	89251	78517	1770	7405	106	1113	213	118	782	340
	H	100.0	88.0	2.0	8.3	.1	1.2	.2	.1	.9	.4
NON-MHEC STATES	WN	431511	371698	9658	38317	768	8771	1958	1579	5234	2299
	H	100.0	86.1	2.2	8.9	.2	2.0	.5	.4	1.2	.5
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	263855	231434	6828	17706	480	5967	1346	1058	3563	1440
	H	100.0	87.7	2.6	6.7	.2	2.3	.5	.4	1.4	.5
MHEC STATES	WN	51579	46085	1024	3429	71	771	147	69	555	199
	H	100.0	89.3	2.0	6.6	.1	1.5	.3	.1	1.1	.4
NON-MHEC STATES	WN	212276	185349	5804	14277	409	5196	1199	989	3008	1241
	H	100.0	87.3	2.7	6.7	.2	2.4	.6	.5	1.4	.6
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	253962	216032	4557	27939	391	3871	799	619	2453	1172
	H	100.0	85.1	1.8	11.0	.2	1.5	.3	.2	1.0	.5
MHEC STATES	WN	37266	32041	746	3961	35	342	66	49	227	141
	H	100.0	86.0	2.0	10.6	.1	.9	.2	.1	.6	.4
NON-MHEC STATES	WN	216696	183991	3811	23978	356	3529	733	570	2226	1031
	H	100.0	84.9	1.8	11.1	.2	1.6	.3	.3	1.0	.5
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	2945	2749	43	77	3	46	26	20		27
	H	100.0	93.3	1.5	2.6	.1	1.6	.9	.7		.9
MHEC STATES	WN	406	391		15						
	H	100.0	96.3		3.7						
NON-MHEC STATES	WN	2539	2358	43	62	3	46	26	20		27
	H	100.0	92.9	1.7	2.4	.1	1.8	1.0	.8		1.1
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	437206	373237	9272	44399	747	7435	1607	1392	4436	2116
	H	100.0	85.4	2.1	10.2	.2	1.7	.4	.3	1.0	.5
MHEC STATES	WN	73829	63997	1431	7174	73	875	168	88	619	279
	H	100.0	86.7	1.9	9.7	.1	1.2	.2	.1	.8	.4
NON-MHEC STATES	WN	363377	309240	7841	37225	674	6560	1439	1304	3817	1837
	H	100.0	85.1	2.2	10.2	.2	1.8	.4	.4	1.1	.5
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	201777	174640	5044	16696	392	3985	879	769	2337	1020
	H	100.0	86.6	2.5	8.3	.2	2.0	.4	.4	1.2	.5
MHEC STATES	WN	39234	34552	752	3202	38	552	110	39	403	138
	H	100.0	88.1	1.9	8.2	.1	1.4	.3	.1	1.0	.4
NON-MHEC STATES	WN	162543	140088	4292	13494	354	3433	769	730	1934	882
	H	100.0	86.2	2.6	8.3	.2	2.1	.5	.4	1.2	.5

SOURCE: 1991 SURVEY OF DOCTORATE RECIPIENTS, NATIONAL RESEARCH COUNCIL

*TABLE 1. TOTAL EMPLOYED ARTS AND SCIENCE PHDS BY YEAR OF DOCTORATE,
* BROAD FIELD OF DOCTORATE, SECTOR OF EMPLOYMENT, LOCATION
* OF EMPLOYER, AND RACE/ETHNIC GROUP, 1991

RACE/ETHNIC GROUP

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - SCIENCE AND ENGINEERING
SECTOR OF EMPLOYMENT - NON-ACADEME

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	233118	196452	4185	27627	352	3433	720	614	2099	1069
	H	100.0	84.3	1.8	11.9	.2	1.5	.3	.3	.9	.5
MHEC STATES	WN	34222	29087	679	3957	35	323	58	49	216	141
	H	100.0	85.0	2.0	11.6	.1	.9	.2	.1	.6	.4
NON-MHEC STATES	WN	198896	167365	3506	23670	317	3110	662	565	1883	928
	H	100.0	84.1	1.8	11.9	.2	1.6	.3	.3	.9	.5

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - SCIENCE AND ENGINEERING
SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	2311	2145	43	76	3	17	8	9		27
	H	100.0	92.8	1.9	3.3	.1	.7	.3	.4		1.2
MHEC STATES	WN	373	358		15						
	H	100.0	96.0		4.0						
NON-MHEC STATES	WN	1938	1787	43	61	3	17	8	9		27
	H	100.0	92.2	2.2	3.1	.2	.9	.4	.5		1.4

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - ARTS
SECTOR OF EMPLOYMENT - TOTAL EMPLOYED

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	83556	76978	2156	1323	127	2449	564	305	1580	523
	H	100.0	92.1	2.6	1.6	.2	2.9	.7	.4	1.9	.6
MHEC STATES	WN	15422	14520	339	231	33	238	45	30	163	61
	H	100.0	94.2	2.2	1.5	.2	1.5	.3	.2	1.1	.4
NON-MHEC STATES	WN	68134	62458	1817	1092	94	2211	519	275	1417	462
	H	100.0	91.7	2.7	1.6	.1	3.2	.8	.4	2.1	.7

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - ARTS
SECTOR OF EMPLOYMENT - ACADEME

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	62078	56794	1784	1010	88	1982	467	289	1226	420
	H	100.0	91.5	2.9	1.6	.1	3.2	.8	.5	2.0	.7
MHEC STATES	WN	12345	11533	272	227	33	219	37	30	152	61
	H	100.0	93.4	2.2	1.8	.3	1.8	.3	.2	1.2	.5
NON-MHEC STATES	WN	49733	45261	1512	783	55	1763	430	259	1074	359
	H	100.0	91.0	3.0	1.6	.1	3.5	.9	.5	2.2	.7

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - ARTS
SECTOR OF EMPLOYMENT - NON-ACADEME

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	20844	19580	372	312	39	438	79	5	354	103
	H	100.0	93.9	1.8	1.5	.2	2.1	.4		1.7	.5
MHEC STATES	WN	3044	2954	67	4		19	8		11	
	H	100.0	97.0	2.2	.1		.6	.3		.4	
NON-MHEC STATES	WN	17800	16626	305	308	39	419	71	5	343	103
	H	100.0	93.4	1.7	1.7	.2	2.4	.4		1.9	.6

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - ARTS
SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	634	604		1		29	18	11		
	H	100.0	95.3		.2		4.6	2.8	1.7		
MHEC STATES	WN	33	33								
	H	100.0	100.0								
NON-MHEC STATES	WN	601	571		1		29	18	11		
	H	100.0	95.0		.2		4.8	3.0	1.8		

SOURCE: 1991 SURVEY OF DOCTORATE RECIPIENTS, NATIONAL RESEARCH COUNCIL

*TABLE 1. TOTAL EMPLOYED ARTS AND SCIENCE PHDS BY YEAR OF DOCTORATE, 95/01/30 PAGE- 3
* BROAD FIELD OF DOCTORATE, SECTOR OF EMPLOYMENT, LOCATION
* OF EMPLOYER, AND RACE/ETHNIC GROUP, 1991
RACE/ETHNIC GROUP

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	303224	271450	5091	20580	352	4108	1045	627	2436	1643
	H	100.0	89.5	1.7	6.8	.1	1.4	.3	.2	.8	.5
MHEC STATES	WN	51777	47075	677	3387	51	404	86	44	274	183
	H	100.0	90.9	1.3	6.5	.1	.8	.2	.1	.5	.4
NON-MHEC STATES	WN	251447	224375	4414	17193	301	3704	959	583	2162	1460
	H	100.0	89.2	1.8	6.8	.1	1.5	.4	.2	.9	.6
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	154980	141173	3147	7125	259	2376	709	389	1278	900
	H	100.0	91.1	2.0	4.6	.2	1.5	.5	.3	.8	.6
MHEC STATES	WN	30164	27908	363	1457	38	309	75	16	218	89
	H	100.0	92.5	1.2	4.8	.1	1.0	.2	.1	.7	.3
NON-MHEC STATES	WN	124816	113265	2784	5668	221	2067	634	373	1060	811
	H	100.0	90.7	2.2	4.5	.2	1.7	.5	.3	.8	.6
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	146175	128321	1944	13396	93	1705	318	229	1158	716
	H	100.0	87.8	1.3	9.2	.1	1.2	.2	.2	.8	.5
MHEC STATES	WN	21276	18841	314	1919	13	95	11	28	56	94
	H	100.0	88.6	1.5	9.0	.1	.4	.1	.1	.3	.4
NON-MHEC STATES	WN	124899	109480	1630	11477	80	1610	307	201	1102	622
	H	100.0	87.7	1.3	9.2	.1	1.3	.2	.2	.9	.5
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	2069	1956		59		27	18	9		27
	H	100.0	94.5		2.9		1.3	.9	.4		1.3
MHEC STATES	WN	337	326		11						
	H	100.0	96.7		3.3						
NON-MHEC STATES	WN	1732	1630		48		27	18	9		27
	H	100.0	94.1		2.8		1.6	1.0	.5		1.6
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	250760	222216	4137	19956	285	2854	710	538	1606	1312
	H	100.0	88.6	1.6	8.0	.1	1.1	.3	.2	.6	.5
MHEC STATES	WN	42080	37855	509	3245	25	263	63	40	160	183
	H	100.0	90.0	1.2	7.7	.1	.6	.1	.1	.4	.4
NON-MHEC STATES	WN	208680	184361	3628	16711	260	2591	647	498	1446	1129
	H	100.0	88.3	1.7	8.0	.1	1.2	.3	.2	.7	.5
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	116550	105375	2337	6636	194	1369	397	300	672	639
	H	100.0	90.4	2.0	5.7	.2	1.2	.3	.3	.6	.5
MHEC STATES	WN	22611	20778	234	1319	12	179	52	12	115	89
	H	100.0	91.9	1.0	5.8	.1	.8	.2	.1	.5	4
NON-MHEC STATES	WN	93939	84597	2103	5317	182	1190	345	288	557	550
	H	100.0	90.1	2.2	5.7	.2	1.3	.4	.3	.6	.6

SOURCE: 1991 SURVEY OF DOCTORATE RECIPIENTS, NATIONAL RESEARCH COUNCIL

*TABLE 1. TOTAL EMPLOYED ARTS AND SCIENCE PHDS BY YEAR OF DOCTORATE, 95/01/30 PAGE- 4
* BROAD FIELD OF DOCTORATE, SECTOR OF EMPLOYMENT, LOCATION
* OF EMPLOYER, AND RACE/ETHNIC GROUP, 1991

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
			RACE/ETHNIC GROUP								
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	132532	115258	1800	13261	91	1476	313	229	934	646
	H	100.0	87.0	1.4	10.0	.1	1.1	.2	.2	.7	.5
MHEC STATES	WN	19165	16784	275	1915	13	84	11	28	45	94
	H	100.0	87.6	1.4	10.0	.1	.4	.1	.1	.2	.5
NON-MHEC STATES	WN	113367	98474	1525	11346	78	1392	302	201	889	552
	H	100.0	86.9	1.3	10.0	.1	1.2	.3	.2	.8	.5
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	1678	1583		59		9		9		27
	H	100.0	94.3		3.5		.5		.5		1.6
MHEC STATES	WN	304	293		11						
	H	100.0	96.4		3.6						
NON-MHEC STATES	WN	1374	1290		48		9		9		27
	H	100.0	93.9		3.5		.7		.7		2.0
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	52464	49234	954	624	67	1254	335	89	830	331
	H	100.0	93.8	1.8	1.2	.1	2.4	.6	.2	1.6	.6
MHEC STATES	WN	9697	9220	168	142	26	141	23	4	114	
	H	100.0	95.1	1.7	1.5	.3	1.5	.2		1.2	
NON-MHEC STATES	WN	42767	40014	786	482	41	1113	312	85	716	331
	H	100.0	93.6	1.8	1.1	.1	2.6	.7	.2	1.7	.8
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	38430	35798	810	489	65	1007	312	89	606	261
	H	100.0	93.2	2.1	1.3	.2	2.6	.8	.2	1.6	.7
MHEC STATES	WN	7553	7130	129	138	26	130	23	4	103	
	H	100.0	94.4	1.7	1.8	.3	1.7	.3	.1	1.4	
NON-MHEC STATES	WN	30877	28668	681	351	39	877	289	85	503	261
	H	100.0	92.8	2.2	1.1	.1	2.8	.9	.3	1.6	.8
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	13643	13063	144	135	2	229	5		224	70
	H	100.0	95.7	1.1	1.0		1.7			1.6	.5
MHEC STATES	WN	2111	2057	39	4		11			11	
	H	100.0	97.4	1.8	.2		.5			.5	
NON-MHEC STATES	WN	11532	11006	105	131	2	218	5		213	70
	H	100.0	95.4	.9	1.1		1.9			1.8	.6
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	391	373				18	18			
	H	100.0	95.4				4.6	4.6			
MHEC STATES	WN	33	33								
	H	100.0	100.0								
NON-MHEC STATES	WN	358	340				18	18			
	H	100.0	95.0				5.0	5.0			

SOURCE: 1991 SURVEY OF DOCTORATE RECIPIENTS, NATIONAL RESEARCH COUNCIL

*TABLE 1. TOTAL EMPLOYED ARTS AND SCIENCE PHDS BY YEAR OF DOCTORATE,
* BROAD FIELD OF DOCTORATE, SECTOR OF EMPLOYMENT, LOCATION
* OF EMPLOYER, AND RACE/ETHNIC GROUP, 1991

RACE/ETHNIC GROUP

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	217538	178765	6337	25142	522	5776	1126	1070	3580	996
	H	100.0	82.2	2.9	11.6	.2	2.7	.5	.5	1.6	.5
MHEC STATES	WN	37474	31442	1093	4018	55	709	127	74	508	157
	H	100.0	83.9	2.9	10.7	.1	1.9	.3	.2	1.4	4
NON-MHEC STATES	WN	180064	147323	5244	21124	467	5067	999	996	3072	839
	H	100.0	81.8	2.9	11.7	.3	2.8	.6	.6	1.7	.5
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	108875	90261	3681	10581	221	3591	637	669	2285	540
	H	100.0	82.9	3.4	9.7	.2	3.3	.6	.6	2.1	.5
MHEC STATES	WN	21415	18177	661	1972	33	462	72	53	337	110
	H	100.0	84.9	3.1	9.2	.2	2.2	.3	.2	1.6	.5
NON-MHEC STATES	WN	87460	72084	3020	8609	188	3129	565	616	1948	430
	H	100.0	82.4	3.5	9.8	.2	3.6	.6	.7	2.2	.5
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	107787	87711	2613	14543	298	2166	481	390	1295	456
	H	100.0	81.4	2.4	13.5	.3	2.0	.4	.4	1.2	.4
MHEC STATES	WN	15990	13200	432	2042	22	247	55	21	171	47
	H	100.0	82.6	2.7	12.8	.1	1.5	.3	.1	1.1	.3
NON-MHEC STATES	WN	91797	74511	2181	12501	276	1919	426	369	1124	409
	H	100.0	81.2	2.4	13.6	.3	2.1	.5	.4	1.2	4
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	876	793	43	18	3	19	8	11		
	H	100.0	90.5	4.9	2.1	.3	2.2	.9	1.3		
MHEC STATES	WN	69	65		4						
	H	100.0	94.2		5.8						
NON-MHEC STATES	WN	807	728	43	14	3	19	8	11		
	H	100.0	90.2	5.3	1.7	.4	2.4	1.0	1.4		
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	186446	151021	5135	24443	462	4581	897	854	2830	804
	H	100.0	81.0	2.8	13.1	.2	2.5	.5	.5	1.5	.4
MHEC STATES	WN	31749	26142	922	3929	48	612	105	48	459	96
	H	100.0	82.3	2.9	12.4	.2	1.9	.3	.2	1.4	.3
NON-MHEC STATES	WN	154697	124879	4213	20514	414	3969	792	806	2371	708
	H	100.0	80.7	2.7	13.3	.3	2.6	.5	.5	1.5	.5
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	85227	69265	2707	10060	198	2616	482	469	1665	381
	H	100.0	81.3	3.2	11.8	.2	3.1	.6	.6	2.0	.4
MHEC STATES	WN	16623	13774	518	1883	26	373	58	27	288	49
	H	100.0	82.9	3.1	11.3	.2	2.2	.3	.2	1.7	.3
NON-MHEC STATES	WN	68604	55491	2189	8177	172	2243	424	442	1377	332
	H	100.0	80.9	3.2	11.9	.3	3.3	.6	.6	2.0	.5

SOURCE: 1991 SURVEY OF DOCTORATE RECIPIENTS, NATIONAL RESEARCH COUNCIL

*TABLE 1. TOTAL EMPLOYED ARTS AND SCIENCE PHDS BY YEAR OF DOCTORATE,
* BROAD FIELD OF DOCTORATE, SECTOR OF EMPLOYMENT, LOCATION
* OF EMPLOYER, AND RACE/ETHNIC GROUP, 1991

			RACE/ETHNIC GROUP								
1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	100586	81194	2385	14366	261	1957	407	385	1165	423
	H	100.0	80.7	2.4	14.3	.3	1.9	.4	.4	1.2	.4
MHEC STATES	WN	15057	12303	404	2042	22	239	47	21	171	47
	H	100.0	81.7	2.7	13.6	.1	1.6	.3	.1	1.1	.3
NON-MHEC STATES	WN	85529	68891	1981	12324	239	1718	360	364	994	376
	H	100.0	80.5	2.3	14.4	.3	2.0	.4	.4	1.2	.4
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	633	562	43	17	3	8	8			
	H	100.0	88.8	6.8	2.7	.5	1.3	1.3			
MHEC STATES	WN	69	65		4						
	H	100.0	94.2		5.8						
NON-MHEC STATES	WN	564	497	43	13	3	8	8			
	H	100.0	88.1	7.6	2.3	.5	1.4	1.4			
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	31092	27744	1202	699	60	1195	229	216	750	192
	H	100.0	89.2	3.9	2.2	.2	3.8	.7	.7	2.4	.6
MHEC STATES	WN	5725	5300	171	89	7	97	22	26	49	61
	H	100.0	92.6	3.0	1.6	.1	1.7	.4	.5	.9	1.1
NON-MHEC STATES	WN	25367	22444	1031	610	53	1098	207	190	701	131
	H	100.0	88.5	4.1	2.4	.2	4.3	.8	.7	2.8	.5
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	23648	20996	974	521	23	975	155	200	620	159
	H	100.0	88.8	4.1	2.2	.1	4.1	.7	.8	2.6	.7
MHEC STATES	WN	4792	4403	143	89	7	89	14	26	49	61
	H	100.0	91.9	3.0	1.9	.1	1.9	.3	.5	1.0	1.3
NON-MHEC STATES	WN	18856	16593	831	432	16	886	141	174	571	98
	H	100.0	88.0	4.4	2.3	.1	4.7	.7	.9	3.0	.5
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	7201	6517	228	177	37	209	74	5	130	33
	H	100.0	90.5	3.2	2.5	.5	2.9	1.0	.1	1.8	.5
MHEC STATES	WN	933	897	28			8	8			
	H	100.0	96.1	3.0			.9	.9			
NON-MHEC STATES	WN	6268	5620	200	177	37	201	66	5	130	33
	H	100.0	89.7	3.2	2.8	.6	3.2	1.1	.1	2.1	.5
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	243	231		1		11		11		
	H	100.0	95.1		.4		4.5		4.5		
MHEC STATES	WN										
	H										
NON-MHEC STATES	WN	243	231		1		11		11		
	H	100.0	95.1		.4		4.5		4.5		

SOURCE: 1991 SURVEY OF DOCTORATE RECIPIENTS, NATIONAL RESEARCH COUNCIL

*TABLE 2. TOTAL NUMBER OF EMPLOYED ARTS AND SCIENCE PHDS WHO RECEIVED 95/01/30 PAGE- 1
* DOCTORATES FROM MHEC STATES, BY YEAR OF DOCTORATE, FIELD OF
* DOCTORATE, TYPE OF EMPLOYER, LOCATION OF EMPLOYER, AND
* RACE/ETHNIC GROUP, 1991

			RACE/ETHNIC GROUP								
1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	118695	103229	2573	10737	170	1385	329	270	786	601
	H	100.0	87.0	2.2	9.0	.1	1.2	.3	.2	.7	.5
MHEC STATES	WN	43290	38135	946	3460	64	463	67	49	347	222
	H	100.0	88.1	2.2	8.0	.1	1.1	.2	.1	.8	.5
NON-MHEC STATES	WN	75405	65094	1627	7277	106	922	262	221	439	379
	H	100.0	86.3	2.2	9.7	.1	1.2	.3	.3	.6	.5
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	62338	55104	1535	4358	129	807	175	155	477	405
	H	100.0	88.4	2.5	7.0	.2	1.3	.3	.2	.8	.6
MHEC STATES	WN	23853	21358	505	1547	47	270	23	17	230	126
	H	100.0	89.5	2.1	6.5	.2	1.1	.1	.1	1.0	.5
NON-MHEC STATES	WN	38485	33746	1030	2811	82	537	152	138	247	279
	H	100.0	87.7	2.7	7.3	.2	1.4	.4	.4	.6	.7
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	55745	47536	1034	6363	41	575	151	115	309	196
	H	100.0	85.3	1.9	11.4	.1	1.0	.3	.2	.6	.4
MHEC STATES	WN	19194	16549	441	1898	17	193	44	32	117	96
	H	100.0	86.2	2.3	9.9	.1	1.0	.2	.2	.6	.5
NON-MHEC STATES	WN	36551	30987	593	4465	24	382	107	83	192	100
	H	100.0	84.8	1.6	12.2	.1	1.0	.3	.2	.5	.3
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	612	589	4	16		3	3			
	H	100.0	96.2	.7	2.6		.5	.5			
MHEC STATES	WN	243	228		15						
	H	100.0	93.8		6.2						
NON-MHEC STATES	WN	369	361	4	1		3	3			
	H	100.0	97.8	1.1	.3		.8	.8			
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	98364	84032	1991	10520	153	1158	255	252	651	510
	H	100.0	85.4	2.0	10.7	.2	1.2	.3	.3	.7	.5
MHEC STATES	WN	35550	30732	766	3414	48	385	40	49	296	205
	H	100.0	86.4	2.2	9.6	.1	1.1	.1	.1	.8	.6
NON-MHEC STATES	WN	62814	53300	1225	7106	105	773	215	203	355	305
	H	100.0	84.9	2.0	11.3	.2	1.2	.3	.3	.6	.5
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	47279	40928	1112	4164	113	621	119	137	365	341
	H	100.0	86.6	2.4	8.8	.2	1.3	.3	.3	.8	.7
MHEC STATES	WN	17908	15690	366	1501	31	211	4	17	190	109
	H	100.0	87.6	2.0	8.4	.2	1.2		.1	1.1	.6
NON-MHEC STATES	WN	29371	25238	746	2663	82	410	115	120	175	232
	H	100.0	85.9	2.5	9.1	.3	1.4	.4	.4	.6	.8

SOURCE: 1991 SURVEY OF DOCTORATE RECIPIENTS, NATIONAL RESEARCH COUNCIL

*TABLE 2. TOTAL NUMBER OF EMPLOYED ARTS AND SCIENCE PHDS WHO RECEIVED
* DOCTORATES FROM MHEC STATES, BY YEAR OF DOCTORATE, FIELD OF
* DOCTORATE, TYPE OF EMPLOYER, LOCATION OF EMPLOYER, AND
* RACE/ETHNIC GROUP, 1991

RACE/ETHNIC GROUP

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - SCIENCE AND ENGINEERING
SECTOR OF EMPLOYMENT - NON-ACADEME

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	50521	42562	875	6341	40	534	133	115	286	169
	H	100.0	84.2	1.7	12.6	.1	1.1	.3	.2	.6	.3
MHEC STATES	WN	17404	14819	400	1898	17	174	36	32	106	96
	H	100.0	85.1	2.3	10.9	.1	1.0	.2	.2	.6	.6
NON-MHEC STATES	WN	33117	27743	475	4443	23	360	97	83	180	73
	H	100.0	83.8	1.4	13.4	.1	1.1	.3	.3	.5	.2

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - SCIENCE AND ENGINEERING
SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	564	542	4	15		3	3			
	H	100.0	96.1	.7	2.7		.5	.5			
MHEC STATES	WN	238	223		15						
	H	100.0	93.7		6.3						
NON-MHEC STATES	WN	326	319	4			3	3			
	H	100.0	97.9	1.2			.9	.9			

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - ARTS
SECTOR OF EMPLOYMENT - TOTAL EMPLOYED

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	20331	19197	582	217	17	227	74	18	135	91
	H	100.0	94.4	2.9	1.1	.1	1.1	.4	.1	.7	.4
MHEC STATES	WN	7740	7403	180	46	16	78	27		51	17
	H	100.0	95.6	2.3	.6	.2	1.0	.3		.7	.2
NON-MHEC STATES	WN	12591	11794	402	171	1	149	47	18	84	74
	H	100.0	93.7	3.2	1.4		1.2	.4	.1	.7	.6

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - ARTS
SECTOR OF EMPLOYMENT - ACADEME

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	15059	14176	423	194	16	186	56	18	112	64
	H	100.0	94.1	2.8	1.3	.1	1.2	.4	.1	.7	.4
MHEC STATES	WN	5945	5668	139	46	16	59	19		40	17
	H	100.0	95.3	2.3	.8	.3	1.0	.3		.7	.3
NON-MHEC STATES	WN	9114	8508	284	148		127	37	18	72	47
	H	100.0	93.4	3.1	1.6		1.4	.4	.2	.8	.5

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - ARTS
SECTOR OF EMPLOYMENT - NON-ACADEME

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	5224	4974	159	22	1	41	18		23	27
	H	100.0	95.2	3.0	.4		.8	.3		.4	.5
MHEC STATES	WN	1790	1730	41			19	8		11	
	H	100.0	96.6	2.3			1.1	.4		.6	
NON-MHEC STATES	WN	3434	3244	118	22	1	22	10		12	27
	H	100.0	94.5	3.4	.6		.6	.3		.3	.8

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - ARTS
SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	48	47		1						
	H	100.0	97.9		2.1						
MHEC STATES	WN	5	5								
	H	100.0	100.0								
NON-MHEC STATES	WN	43	42		1						
	H	100.0	97.7		2.3						

SOURCE: 1991 SURVEY OF DOCTORATE RECIPIENTS, NATIONAL RESEARCH COUNCIL

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* RACE/ETHNIC GROUP, 1991

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
			RACE/ETHNIC GROUP								
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT† - TOTAL EMPLOYED											
TOTAL, U.S.	WN	73574	66074	1245	5082	93	608	195	131	282	472
	H	100.0	89.8	1.7	6.9	.1	.8	.3	.2	.4	.6
MHEC STATES	WN	24886	22654	355	1546	31	156	23	28	105	144
	H	100.0	91.0	1.4	6.2	.1	.6	.1	.1	.4	.6
NON-MHEC STATES	WN	48688	43420	890	3536	62	452	172	103	177	328
	H	100.0	89.2	1.8	7.3	.1	.9	.4	.2	.4	.7
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT† - ACADEME											
TOTAL, U.S.	WN	38725	35447	700	1861	80	315	126	68	121	322
	H	100.0	91.5	1.8	4.8	.2	.8	.3	.2	.3	.8
MHEC STATES	WN	14178	13202	149	639	23	77	16	5	56	88
	H	100.0	93.1	1.1	4.5	.2	.5	.1		.4	.6
NON-MHEC STATES	WN	24547	22245	551	1222	57	238	110	63	65	234
	H	100.0	90.6	2.2	5.0	.2	1.0	.4	.3	.3	1.0
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT† - NON-ACADEME											
TOTAL, U.S.	WN	34356	30145	545	3210	13	293	69	63	161	150
	H	100.0	87.7	1.6	9.3		.9	.2	.2	.5	.4
MHEC STATES	WN	10534	9289	206	896	8	79	7	23	49	56
	H	100.0	88.2	2.0	8.5	.1	.7	.1	.2	.5	.5
NON-MHEC STATES	WN	23822	20856	339	2314	5	214	62	40	112	94
	H	100.0	87.5	1.4	9.7		.9	.3	.2	.5	.4
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT† - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	493	482		11						
	H	100.0	97.8		2.2						
MHEC STATES	WN	174	163		11						
	H	100.0	93.7		6.3						
NON-MHEC STATES	WN	319	319								
	H	100.0	100.0								
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	59799	52875	986	4976	78	467	157	129	181	417
	H	100.0	88.4	1.6	8.3	.1	.8	.3	.2	.3	.7
MHEC STATES	WN	19907	17860	267	1526	17	93	11	28	54	144
	H	100.0	89.7	1.3	7.7	.1	.5	.1	.1	.3	.7
NON-MHEC STATES	WN	39892	35015	719	3450	61	374	146	101	127	273
	H	100.0	87.8	1.8	8.6	.2	.9	.4	.3	.3	.7
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	28689	25834	531	1767	66	197	88	66	43	294
	H	100.0	90.0	1.9	6.2	.2	.7	.3	.2	.1	1.0
MHEC STATES	WN	10390	9549	100	619	9	25	4	5	16	88
	H	100.0	91.9	1.0	6.0	.1	.2			.2	.8
NON-MHEC STATES	WN	18299	16285	431	1148	57	172	84	61	27	206
	H	100.0	89.0	2.4	6.3	.3	.9	.5	.3	.1	1.1

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* DOCTORATES FROM MHEC STATES, BY YEAR OF DOCTORATE, FIELD OF
* DOCTORATE, TYPE OF EMPLOYER, LOCATION OF EMPLOYER, AND
* RACE/ETHNIC GROUP, 1991

			RACE/ETHNIC GROUP								
1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	30657	26599	455	3198	12	270	69	63	138	123
	H	100.0	86.8	1.5	10.4		.9	.2	.2	.5	.4
MHEC STATES	WN	9348	8153	167	896	8	68	7	23	38	56
	H	100.0	87.2	1.8	9.6	.1	.7	.1	.2	.4	.6
NON-MHEC STATES	WN	21309	18446	288	2302	4	202	62	40	100	67
	H	100.0	86.6	1.4	10.8		.9	.3	.2	.5	.3
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	453	442		11						
	H	100.0	97.6		2.4						
MHEC STATES	WN	169	158		11						
	H	100.0	93.5		6.5						
NON-MHEC STATES	WN	284	284								
	H	100.0	100.0								
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	13775	13199	259	106	15	141	38	2	101	55
	H	100.0	95.8	1.9	.8	.1	1.0	.3		.7	.4
MHEC STATES	WN	4979	4794	88	20	14	63	12		51	
	H	100.0	96.3	1.8	.4	.3	1.3	.2		1.0	
NON-MHEC STATES	WN	8796	8405	171	86	1	78	26	2	50	55
	H	100.0	95.6	1.9	1.0		.9	.3		.6	.6
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	10036	9613	169	94	14	118	38	2	78	28
	H	100.0	95.8	1.7	.9	.1	1.2	.4		.8	.3
MHEC STATES	WN	3788	3653	49	20	14	52	12		40	
	H	100.0	96.4	1.3	.5	.4	1.4	.3		1.1	
NON-MHEC STATES	WN	6248	5960	120	74		66	26	2	38	28
	H	100.0	95.4	1.9	1.2		1.1	.4		.6	.4
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	3699	3546	90	12	1	23			23	27
	H	100.0	95.9	2.4	.3		.6			.6	.7
MHEC STATES	WN	1186	1136	39			11			11	
	H	100.0	95.8	3.3			.9			.9	
NON-MHEC STATES	WN	2513	2410	51	12	1	12			12	27
	H	100.0	95.9	2.0	.5		.5			.5	1.1
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	40	40								
	H	100.0	100.0								
MHEC STATES	WN	5	5								
	H	100.0	100.0								
NON-MHEC STATES	WN	35	35								
	H	100.0	100.0								

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RACE/ETHNIC GROUP

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	45121	37155	1328	5655	77	777	134	139	504	129
	H	100.0	82.3	2.9	12.5	.2	1.7	.3	.3	1.1	.3
MHEC STATES	WN	18404	15481	591	1914	33	307	44	21	242	78
	H	100.0	84.1	3.2	10.4	.2	1.7	.2	.1	1.3	.4
NON-MHEC STATES	WN	26717	21674	737	3741	44	470	90	118	262	51
	H	100.0	81.1	2.8	14.0	.2	1.8	.3	.4	1.0	.2
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	23613	19657	835	2497	49	492	49	87	356	83
	H	100.0	83.2	3.5	10.6	.2	2.1	.2	.4	1.5	.4
MHEC STATES	WN	9675	8156	356	908	24	193	7	12	174	38
	H	100.0	84.3	3.7	9.4	.2	2.0	.1	.1	1.8	.4
NON-MHEC STATES	WN	13938	11501	479	1589	25	299	42	75	182	45
	H	100.0	82.5	3.4	11.4	.2	2.1	.3	.5	1.3	.3
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	21389	17391	489	3153	28	282	82	52	148	46
	H	100.0	81.3	2.3	14.7	.1	1.3	.4	.2	.7	.2
MHEC STATES	WN	8660	7260	235	1002	9	114	37	9	68	40
	H	100.0	83.8	2.7	11.6	.1	1.3	.4	.1	.8	.5
NON-MHEC STATES	WN	12729	10131	254	2151	19	168	45	43	80	6
	H	100.0	79.6	2.0	16.9	.1	1.3	.4	.3	.6	
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	119	107	4	5		3	3			
	H	100.0	89.9	3.4	4.2		2.5	2.5			
MHEC STATES	WN	69	65		4						
	H	100.0	94.2		5.8						
NON-MHEC STATES	WN	50	42	4	1		3	3			
	H	100.0	84.0	8.0	2.0		6.0	6.0			
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	38565	31157	1005	5544	75	691	98	123	470	93
	H	100.0	80.8	2.6	14.4	.2	1.8	.3	.3	1.2	.2
MHEC STATES	WN	15643	12872	499	1888	31	292	29	21	242	61
	H	100.0	82.3	3.2	12.1	.2	1.9	.2	.1	1.5	.4
NON-MHEC STATES	WN	22922	18285	506	3656	44	399	69	102	228	32
	H	100.0	79.8	2.2	15.9	.2	1.7	.3	.4	1.0	.1
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	18590	15094	581	2397	47	424	31	71	322	47
	H	100.0	81.2	3.1	12.9	.3	2.3	.2	.4	1.7	.3
MHEC STATES	WN	7518	6141	266	882	22	186		12	174	21
	H	100.0	81.7	3.5	11.7	.3	2.5		.2	2.3	.3
NON-MHEC STATES	WN	11072	8953	315	1515	25	238	31	59	148	26
	H	100.0	80.9	2.8	13.7	.2	2.1	.3	.5	1.3	.2

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			RACE/ETHNIC GROUP								
1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	19864	15963	420	3143	28	264	64	52	148	46
	H	100.0	80.4	2.1	15.8	.1	1.3	.3	.3	.7	.2
MHEC STATES	WN	8056	6666	233	1002	9	106	29	9	68	40
	H	100.0	82.7	2.9	12.4	.1	1.3	.4	.1	.8	.5
NON-MHEC STATES	WN	11808	9297	187	2141	19	158	35	43	80	6
	H	100.0	78.7	1.6	18.1	.2	1.3	.3	.4	.7	.1
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	111	100	4	4		3	3			
	H	100.0	90.1	3.6	3.6		2.7	2.7			
MHEC STATES	WN	69	65		4						
	H	100.0	94.2		5.8						
NON-MHEC STATES	WN	42	35	4			3	3			
	H	100.0	83.3	9.5			7.1	7.1			
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	6556	5998	323	111	2	86	36	16	34	36
	H	100.0	91.5	4.9	1.7		1.3	.5	.2	.5	.5
MHEC STATES	WN	2761	2609	92	26	2	15	15			17
	H	100.0	94.5	3.3	.9	.1	.5	.5			.6
NON-MHEC STATES	WN	3795	3389	231	85		71	21	16	34	19
	H	100.0	89.3	6.1	2.2		1.9	.6	.4	.9	.5
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	5023	4563	254	100	2	68	18	16	34	36
	H	100.0	90.8	5.1	2.0		1.4	.4	.3	.7	.7
MHEC STATES	WN	2157	2015	90	26	2	7	7			17
	H	100.0	93.4	4.2	1.2	.1	.3	.3			.8
NON-MHEC STATES	WN	2866	2548	164	74		61	11	16	34	19
	H	100.0	88.9	5.7	2.6		2.1	.4	.6	1.2	.7
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	1525	1428	69	10		18	18			
	H	100.0	93.6	4.5	.7		1.2	1.2			
MHEC STATES	WN	604	594	2			8	8			
	H	100.0	98.3	.3			1.3	1.3			
NON-MHEC STATES	WN	921	834	67	10		10	10			
	H	100.0	90.6	7.3	1.1		1.1	1.1			
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	8	7		1						
	H	100.0	87.5		12.5						
MHEC STATES	WN										
	H										
NON-MHEC STATES	WN	8	7		1						
	H	100.0	87.5		12.5						

SOURCE: 1991 SURVEY OF DOCTORATE RECIPIENTS, NATIONAL RESEARCH COUNCIL

*TABLE 3 TOTAL NUMBER OF EMPLOYED ARTS AND SCIENCE PHDS WHO RECEIVED
* DOCTORATES FROM NON-MHEC STATES, BY YEAR OF DOCTORATE,
* FIELD OF DOCTORATE, TYPE OF EMPLOYER, LOCATION OF EMPLOYER,
* RACE/ETHNIC GROUP, 1991

		RACE/ETHNIC GROUP									
1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	402067	346986	8855	34985	704	8499	1842	1427	5230	2038
	H	100.0	86.3	2.2	8.7	.2	2.1	.5	.4	1.3	.5
MHEC STATES	WN	45961	40382	824	3945	42	650	146	69	435	118
	H	100.0	87.9	1.8	8.6	.1	1.4	.3	.2	.9	.3
NON-MHEC STATES	WN	356106	306604	8031	31040	662	7849	1696	1358	4795	1920
	H	100.0	86.1	2.3	8.7	.2	2.2	.5	.4	1.3	.5
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	201517	176330	5293	13348	351	5160	1171	903	3086	1035
	H	100.0	87.5	2.6	6.6	.2	2.6	.6	.4	1.5	.5
MHEC STATES	WN	27726	24727	519	1882	24	501	124	52	325	73
	H	100.0	89.2	1.9	6.8	.1	1.8	.4	.2	1.2	.3
NON-MHEC STATES	WN	173791	151603	4774	11466	327	4659	1047	851	2761	962
	H	100.0	87.2	2.7	6.6	.2	2.7	.6	.5	1.6	.6
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	198217	168496	3523	21576	350	3296	648	504	2144	976
	H	100.0	85.0	1.8	10.9	.2	1.7	.3	.3	1.1	.5
MHEC STATES	WN	18072	15492	305	2063	18	149	22	17	110	45
	H	100.0	85.7	1.7	11.4	.1	.8	.1	.1	.6	.2
NON-MHEC STATES	WN	180145	153004	3218	19513	332	3147	626	487	2034	931
	H	100.0	84.9	1.8	10.8	.2	1.7	.3	.3	1.1	.5
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	2333	2160	39	61	3	43	23	20		27
	H	100.0	92.6	1.7	2.6	.1	1.8	1.0	.9		1.2
MHEC STATES	WN	163	163								
	H	100.0	100.0								
NON-MHEC STATES	WN	2170	1997	39	61	3	43	23	20		27
	H	100.0	92.0	1.8	2.8	.1	2.0	1.1	.9		1.2
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	338842	289205	7281	33879	594	6277	1352	1140	3785	1606
	H	100.0	85.4	2.1	10.0	.2	1.9	.4	.3	1.1	.5
MHEC STATES	WN	38279	33265	665	3760	25	490	128	39	323	74
	H	100.0	86.9	1.7	9.8	.1	1.3	.3	.1	.8	.2
NON-MHEC STATES	WN	300563	255940	6616	30119	569	5787	1224	1101	3462	1532
	H	100.0	85.2	2.2	10.0	.2	1.9	.4	.4	1.2	.5
YEAR OF DOCTORATE - TOTAL, ALL PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	154498	133712	3932	12532	279	3364	760	632	1972	679
	H	100.0	86.5	2.5	8.1	.2	2.2	.5	.4	1.3	.4
MHEC STATES	WN	21326	18862	386	1701	7	341	106	22	213	29
	H	100.0	88.4	1.8	8.0		1.6	.5	.1	1.0	.1
NON-MHEC STATES	WN	133172	114850	3546	10831	272	3023	654	610	1759	650
	H	100.0	86.2	2.7	8.1	.2	2.3	.5	.5	1.3	.5

SOURCE: 1991 SURVEY OF DOCTORATE RECIPIENTS, NATIONAL RESEARCH COUNCIL

*TABLE 3 TOTAL NUMBER OF EMPLOYED ARTS AND SCIENCE PHDS WHO RECEIVED
* DOCTORATES FROM NON-MHEC STATES, BY YEAR OF DOCTORATE,
* FIELD OF DOCTORATE, TYPE OF EMPLOYER, LOCATION OF EMPLOYER,
* RACE/ETHNIC GROUP, 1991

RACE/ETHNIC GROUP

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - SCIENCE AND ENGINEERING
SECTOR OF EMPLOYMENT - NON-ACADEME

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	182597	153890	3310	21286	312	2899	587	499	1813	900
	H	100.0	84.3	1.8	11.7	.2	1.6	3	3	1.0	5
MHEC STATES	WN	16818	14268	279	2059	18	149	22	17	110	45
	H	100.0	84.8	1.7	12.2	.1	.9	.1	1	.7	3
NON-MHEC STATES	WN	165779	139622	3031	19227	294	2750	565	482	1703	855
	H	100.0	84.2	1.8	11.6	.2	1.7	3	.3	1.0	5

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - SCIENCE AND ENGINEERING
SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	1747	1603	39	61	3	14	5	9		27
	H	100.0	91.8	2.2	3.5	.2	.8	.3	5		1.5
MHEC STATES	WN	135	135								
	H	100.0	100.0								
NON-MHEC STATES	WN	1612	1468	39	61	3	14	5	9		27
	H	100.0	91.1	2.4	3.8	.2	.9	.3	6		1.7

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - ARTS
SECTOR OF EMPLOYMENT - TOTAL EMPLOYED

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	63225	57781	1574	1106	110	2222	490	287	1445	432
	H	100.0	91.4	2.5	1.7	.2	3.5	.8	.5	2.3	.7
MHEC STATES	WN	7682	7117	159	185	17	160	18	30	112	44
	H	100.0	92.6	2.1	2.4	.2	2.1	.2	.4	1.5	6
NON-MHEC STATES	WN	55543	50664	1415	921	93	2062	472	257	1333	388
	H	100.0	91.2	2.5	1.7	.2	3.7	.8	.5	2.4	.7

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - ARTS
SECTOR OF EMPLOYMENT - ACADEME

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	47019	42618	1361	816	72	1796	411	271	1114	356
	H	100.0	90.6	2.9	1.7	.2	3.8	.9	.6	2.4	.8
MHEC STATES	WN	6400	5865	133	181	17	160	18	30	112	44
	H	100.0	91.6	2.1	2.8	.3	2.5	.3	.5	1.8	.7
NON-MHEC STATES	WN	40619	36753	1228	635	55	1636	393	241	1002	312
	H	100.0	90.5	3.0	1.6	.1	4.0	1.0	.6	2.5	.8

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - ARTS
SECTOR OF EMPLOYMENT - NON-ACADEME

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	15620	14606	213	290	38	397	61	5	331	76
	H	100.0	93.5	1.4	1.9	.2	2.5	.4		2.1	.5
MHEC STATES	WN	1254	1224	26	4						
	H	100.0	97.6	2.1	.3						
NON-MHEC STATES	WN	14366	13382	187	286	38	397	61	5	331	76
	H	100.0	93.2	1.3	2.0	.3	2.8	4		2.3	5

YEAR OF DOCTORATE - TOTAL, ALL PH.D.S
PH.D. FIELD - ARTS
SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	586	557				29	18	11		
	H	100.0	95.1				4.9	3.1	1.9		
MHEC STATES	WN	28	28								
	H	100.0	100.0								
NON-MHEC STATES	WN	558	529				29	18	11		
	H	100.0	94.8				5.2	3.2	2.0		

SOURCE: 1991 SURVEY OF DOCTORATE RECIPIENTS, NATIONAL RESEARCH COUNCIL

*TABLE 3. TOTAL NUMBER OF EMPLOYED ARTS AND SCIENCE PHDS WHO RECEIVED DOCTORATES FROM NON-MHEC STATES, BY YEAR OF DOCTORATE, FIELD OF DOCTORATE, TYPE OF EMPLOYER, LOCATION OF EMPLOYER, RACE/ETHNIC GROUP, 1991 — 95/01/31 — PAGE- 3
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RACE/ETHNIC GROUP

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO, RICAN	OTHER HISPANIC	OTHER/ NO REPORT
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	229650	205376	3846	15498	259	3500	850	496	2154	1171
	H	100.0	89.4	1.7	6.7	.1	1.5	.4	.2	.9	.5
MHEC STATES	WN	26891	24421	322	1841	20	248	63	16	169	39
	H	100.0	90.8	1.2	6.8	.1	.9	.2	.1	.6	.1
NON-MHEC STATES	WN	202759	180955	3524	13657	239	3252	787	480	1985	1132
	H	100.0	89.2	1.7	6.7	.1	1.6	.4	.2	1.0	.6
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	116255	105726	2447	5264	179	2061	583	321	1157	578
	H	100.0	90.9	2.1	4.5	.2	1.8	.5	.3	1.0	.5
MHEC STATES	WN	15986	14706	214	818	15	232	59	11	162	1
	H	100.0	92.0	1.3	5.1	.1	1.5	.4	.1	1.0	
NON-MHEC STATES	WN	100269	91020	2233	4446	164	1829	524	310	995	577
	H	100.0	90.8	2.2	4.4	.2	1.8	.5	.3	1.0	.6
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	111819	98176	1399	10186	80	1412	249	166	997	566
	H	100.0	87.8	1.3	9.1	.1	1.3	.2	.1	.9	.5
MHEC STATES	WN	10742	9552	108	1023	5	16	4	5	7	38
	H	100.0	88.9	1.0	9.5		.1			.1	.4
NON-MHEC STATES	WN	101077	88624	1291	9163	75	1396	245	161	990	528
	H	100.0	87.7	1.3	9.1	.1	1.4	.2	.2	1.0	.5
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	1576	1474		48		27	18	9		27
	H	100.0	93.5		3.0		1.7	1.1	.6		1.7
MHEC STATES	WN	163	163								
	H	100.0	100.0								
NON-MHEC STATES	WN	1413	1311		48		27	18	9		27
	H	100.0	92.8		3.4		1.9	1.3	.6		1.9
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	190961	169341	3151	14980	207	2387	553	409	1425	895
	H	100.0	88.7	1.7	7.8	.1	1.2	.3	.2	.7	.5
MHEC STATES	WN	22173	19995	242	1719	8	170	52	12	106	39
	H	100.0	90.2	1.1	7.8		.8	.2	.1	.5	.2
NON-MHEC STATES	WN	168788	149346	2909	13261	199	2217	501	397	1319	856
	H	100.0	88.5	1.7	7.9	.1	1.3	.3	.2	.8	.5
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	87861	79541	1806	4869	128	1172	309	234	629	345
	H	100.0	90.5	2.1	5.5	.1	1.3	.4	.3	.7	.4
MHEC STATES	WN	12221	11229	134	700	3	154	48	7	99	1
	H	100.0	91.9	1.1	5.7		1.3	.4	.1	.8	
NON-MHEC STATES	WN	75640	68312	1672	4169	125	1018	261	227	530	344
	H	100.0	90.3	2.2	5.5	.2	1.3	.3	.3	.7	.5

SOURCE: 1991 SURVEY OF DOCTORATE RECIPIENTS, NATIONAL RESEARCH COUNCIL

*TABLE 3. TOTAL NUMBER OF EMPLOYED ARTS AND SCIENCE PHDS WHO RECEIVED
* DOCTORATES FROM NON-MHEC STATES, BY YEAR OF DOCTORATE,
* FIELD OF DOCTORATE, TYPE OF EMPLOYER, LOCATION OF EMPLOYER,
* RACE/ETHNIC GROUP, 1991

			RACE/ETHNIC GROUP								
1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	101875	88659	1345	10063	79	1206	244	166	796	523
	H	100.0	87.0	1.3	9.9	.1	1.2	.2	.2	.8	.5
MHEC STATES	WN	9817	8631	108	1019	5	16	4	5	7	38
	H	100.0	87.9	1.1	10.4	.1	.2		.1	.1	.4
NON-MHEC STATES	WN	92058	80028	1237	9044	74	1190	240	161	789	485
	H	100.0	86.9	1.3	9.8	.1	1.3	.3	.2	.9	.5
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	1225	1141		48		9		9		27
	H	100.0	93.1		3.9		.7		.7		2.2
MHEC STATES	WN	135	135								
	H	100.0	100.0								
NON-MHEC STATES	WN	1090	1006		48		9		9		27
	H	100.0	92.3		4.4		.8		.8		2.5
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	38689	36035	695	518	52	1113	297	87	729	276
	H	100.0	93.1	1.8	1.3	.1	2.9	.8	.2	1.9	.7
MHEC STATES	WN	4718	4426	80	122	12	78	11	4	63	
	H	100.0	93.8	1.7	2.6	.3	1.7	.2	.1	1.3	
NON-MHEC STATES	WN	33971	31609	615	396	40	1035	286	83	666	276
	H	100.0	93.0	1.8	1.2	.1	3.0	.8	.2	2.0	.8
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	28394	26185	641	395	51	889	274	87	528	233
	H	100.0	92.2	2.3	1.4	.2	3.1	1.0	.3	1.9	.8
MHEC STATES	WN	3765	3477	80	118	12	78	11	4	63	
	H	100.0	92.4	2.1	3.1	.3	2.1	.3	.1	1.7	
NON-MHEC STATES	WN	24629	22708	561	277	39	811	263	83	465	233
	H	100.0	92.2	2.3	1.1	.2	3.3	1.1	.3	1.9	.9
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	9944	9517	54	123	1	206	5		201	43
	H	100.0	95.7	.5	1.2		2.1	.1		2.0	.4
MHEC STATES	WN	925	921		4						
	H	100.0	99.6		.4						
NON-MHEC STATES	WN	9019	8596	54	119	1	206	5		201	43
	H	100.0	95.3	.6	1.3		2.3	.1		2.2	.5
YEAR OF DOCTORATE - 1940-1979 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	351	333				18	18			
	H	100.0	94.9				5.1	5.1			
MHEC STATES	WN	28	28								
	H	100.0	100.0								
NON-MHEC STATES	WN	323	305				18	18			
	H	100.0	94.4				5.6	5.6			

SOURCE: 1991 SURVEY OF DOCTORATE RECIPIENTS, NATIONAL RESEARCH COUNCIL

*TABLE 3. TOTAL NUMBER OF EMPLOYED ARTS AND SCIENCE PHDS WHO RECEIVED
* DOCTORATES FROM NON-MHEC STATES, BY YEAR OF DOCTORATE,
* FIELD OF DOCTORATE, TYPE OF EMPLOYER, LOCATION OF EMPLOYER,
* RACE/ETHNIC GROUP, 1991

RACE/ETHNIC GROUP

YEAR OF DOCTORATE - 1980-1990 PH.D.S
PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS
SECTOR OF EMPLOYMENT - TOTAL EMPLOYED

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	172417	141610	5009	19487	445	4999	992	931	3076	867
	H	100.0	82.1	2.9	11.3	.3	2.9	.6	.5	1.8	.5
MHEC STATES	WN	19070	15961	502	2104	22	402	83	53	266	79
	H	100.0	83.7	2.6	11.0	.1	2.1	.4	.3	1.4	.4
NON-MHEC STATES	WN	153347	125649	4507	17383	423	4597	909	878	2810	788
	H	100.0	81.9	2.9	11.3	.3	3.0	.6	.6	1.8	.5

YEAR OF DOCTORATE - 1980-1990 PH.D.S
PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS
SECTOR OF EMPLOYMENT - ACADEME

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	85262	70604	2846	8084	172	3099	588	582	1929	457
	H	100.0	82.8	3.3	9.5	.2	3.6	.7	.7	2.3	.5
MHEC STATES	WN	11740	10021	305	1064	9	269	65	41	163	72
	H	100.0	85.4	2.6	9.1	.1	2.3	.6	3	1.4	.6
NON-MHEC STATES	WN	73522	60583	2541	7020	163	2830	523	541	1766	385
	H	100.0	82.4	3.5	9.5	.2	3.8	.7	.7	2.4	.5

YEAR OF DOCTORATE - 1980-1990 PH.D.S
PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS
SECTOR OF EMPLOYMENT - NON-ACADEME

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	86398	70320	2124	11390	270	1884	399	338	1147	410
	H	100.0	81.4	2.5	13.2	.3	2.2	.5	.4	1.3	.5
MHEC STATES	WN	7330	5940	197	1040	13	133	18	12	103	7
	H	100.0	81.0	2.7	14.2	.2	1.8	.2	.2	1.4	.1
NON-MHEC STATES	WN	79068	64380	1927	10350	257	1751	381	326	1044	403
	H	100.0	81.4	2.4	13.1	.3	2.2	.5	.4	1.3	.5

YEAR OF DOCTORATE - 1980-1990 PH.D.S
PH.D. FIELD - TOTAL, ARTS & SCIENCES FIELDS
SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	757	686	39	13	3	16	5	11		
	H	100.0	90.6	5.2	1.7	.4	2.1	.7	1.5		
MHEC STATES	WN										
	H										
NON-MHEC STATES	WN	757	686	39	13	3	16	5	11		
	H	100.0	90.6	5.2	1.7	.4	2.1	.7	1.5		

YEAR OF DOCTORATE - 1980-1990 PH.D.S
PH.D. FIELD - SCIENCE AND ENGINEERING
SECTOR OF EMPLOYMENT - TOTAL EMPLOYED

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	147881	119864	4130	18899	387	3890	799	731	2360	711
	H	100.0	81.1	2.8	12.8	.3	2.6	.5	.5	1.6	.5
MHEC STATES	WN	16106	13270	423	2041	17	320	76	27	217	35
	H	100.0	82.4	2.6	12.7	.1	2.0	.5	.2	1.3	.2
NON-MHEC STATES	WN	131775	106594	3707	16858	370	3570	723	704	2143	676
	H	100.0	80.9	2.8	12.8	.3	2.7	.5	.5	1.6	.5

YEAR OF DOCTORATE - 1980-1990 PH.D.S
PH.D. FIELD - SCIENCE AND ENGINEERING
SECTOR OF EMPLOYMENT - ACADEME

1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
TOTAL, U.S.	WN	66637	54171	2126	7663	151	2192	451	398	1343	334
	H	100.0	81.3	3.2	11.5	.2	3.3	.7	.6	2.0	.5
MHEC STATES	WN	9105	7633	252	1001	4	187	58	15	114	28
	H	100.0	83.8	2.8	11.0		2.1	.6	.2	1.3	.3
NON-MHEC STATES	WN	57532	46538	1874	6662	147	2005	393	383	1229	306
	H	100.0	80.9	3.3	11.6	.3	3.5	.7	.7	2.1	.5

SOURCE: 1991 SURVEY OF DOCTORATE RECIPIENTS, NATIONAL RESEARCH COUNCIL

*TABLE 3. TOTAL NUMBER OF EMPLOYED ARTS AND SCIENCE PHDS WHO RECEIVED
* DOCTORATES FROM NON-MHEC STATES, BY YEAR OF DOCTORATE,
* FIELD OF DOCTORATE, TYPE OF EMPLOYER, LOCATION OF EMPLOYER,
* RACE/ETHNIC GROUP, 1991

		RACE/ETHNIC GROUP									
1991 REGION OF EMPLOYMENT		TOTAL	WHITE	BLACK	ASIAN	NATIVE AMERICAN	HISPANIC SUBTOTAL	MEXICAN-AMERICAN	PUERTO RICAN	OTHER HISPANIC	OTHER/ NO REPORT
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	80722	65231	1965	11223	233	1693	343	333	1017	377
	H	100.0	80.8	2.4	13.9	.3	2.1	.4	.4	1.3	.5
MHEC STATES	WN	7001	5637	171	1040	13	133	18	12	103	7
	H	100.0	80.5	2.4	14.9	.2	1.9	.3	.2	1.5	.1
NON-MHEC STATES	WN	73721	59594	1794	10183	220	1560	325	321	914	370
	H	100.0	80.8	2.4	13.8	.3	2.1	.4	.4	1.2	.5
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - SCIENCE AND ENGINEERING SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	522	462	39	13	3	5	5			
	H	100.0	88.5	7.5	2.5	.6	1.0	1.0			
MHEC STATES	WN										
	H										
NON-MHEC STATES	WN	522	462	39	13	3	5	5			
	H	100.0	88.5	7.5	2.5	.6	1.0	1.0			
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - TOTAL EMPLOYED											
TOTAL, U.S.	WN	24536	21746	879	588	58	1109	193	200	716	156
	H	100.0	88.6	3.6	2.4	.2	4.5	.8	.8	2.9	.6
MHEC STATES	WN	2964	2691	79	63	5	82	7	26	49	44
	H	100.0	90.8	2.7	2.1	.2	2.8	.2	.9	1.7	1.5
NON-MHEC STATES	WN	21572	19055	800	525	53	1027	186	174	667	112
	H	100.0	88.3	3.7	2.4	.2	4.8	.9	.8	3.1	.5
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - ACADEME											
TOTAL, U.S.	WN	18625	16433	720	421	21	907	137	184	586	123
	H	100.0	88.2	3.9	2.3	.1	4.9	.7	1.0	3.1	.7
MHEC STATES	WN	2635	2388	53	63	5	82	7	26	49	44
	H	100.0	90.6	2.0	2.4	.2	3.1	.3	1.0	1.9	1.7
NON-MHEC STATES	WN	15990	14045	667	358	16	825	130	158	537	79
	H	100.0	87.8	4.2	2.2	.1	5.2	.8	1.0	3.4	.5
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - NON-ACADEME											
TOTAL, U.S.	WN	5676	5089	159	167	37	191	56	5	130	33
	H	100.0	89.7	2.8	2.9	.7	3.4	1.0	.1	2.3	.6
MHEC STATES	WN	329	303	26							
	H	100.0	92.1	7.9							
NON-MHEC STATES	WN	5347	4786	133	167	37	191	56	5	130	33
	H	100.0	89.5	2.5	3.1	.7	3.6	1.0	.1	2.4	.6
YEAR OF DOCTORATE - 1980-1990 PH.D.S PH.D. FIELD - ARTS SECTOR OF EMPLOYMENT - NO REPORT ON EMPLOYER											
TOTAL, U.S.	WN	235	224				11		11		
	H	100.0	95.3				4.7		4.7		
MHEC STATES	WN										
	H										
NON-MHEC STATES	WN	235	224				11		11		
	H	100.0	95.3				4.7		4.7		

SOURCE: 1991 SURVEY OF DOCTORATE RECIPIENTS, NATIONAL RESEARCH COUNCIL